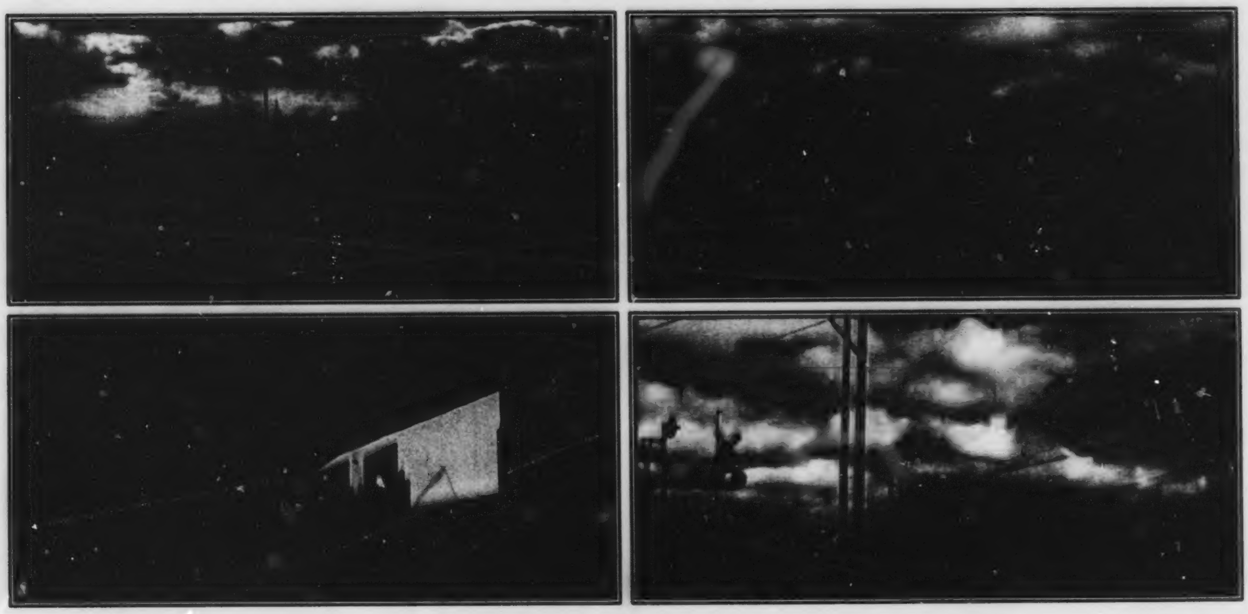
THE CITY OF CALGARY
PLANNING & TRANSPORTATION POLICY

THE SHEPARD PLAN



MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44
Department of Planning and Development

AND

THE CITY OF CALGARY
Planning and Transportation Policy

PUBLISHING INFORMATION

TITLE: M.D. OF ROCKYVIEW/CITY OF CALGARY
INTERMUNICIPAL DEVELOPMENT PLAN

AUTHORS: CITY OF CALGARY
PLANNING & BUILDING DEPARTMENT

M.D. OF ROCKYVIEW
DEPARTMENT OF PLANNING & DEVELOPMENT

STATUS: APPROVED BY CALGARY CITY COUNCIL
1998 OCTOBER 6, BYLAW NO. C-4929-98

PRINTING DATE: NOVEMBER 2001

ADDITIONAL COPIES: THE CITY OF CALGARY
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PART A INTRODUCTION, PLANNING PROCESS AND PLAN VISION AND OBJECTIVES

The Shepard Area Structure Plan (ASP) is presented in three (3) parts: A, B, and C.

Part A contains general/background information regarding the planning process and the Plan goals. **Part A** is for information purposes. Part A and the appendices are printed on blue paper.

Part B contains a land use strategy specifically for lands located within the jurisdiction of the M.D. of Rocky View. **Part B** is intended to be adopted by bylaw in the M.D. of Rocky View as an Area Structure Plan. Part B is printed on grey paper.

Part C contains a land use strategy specifically for the lands located within the jurisdiction of The City of Calgary. **Part C** is intended to be adopted by bylaw by The City of Calgary as an Area Structure Plan. **Part C** is intended to replace the policies contained within the Southeast Industrial ASP for lands east of the Transportation/Utility Corridor (TUC). A formal amendment to the Southeast Industrial ASP is required in order to allow the adoption of **Part C**. **Part C** is printed on white paper

PART A - INTRODUCTION, PLANNING PROCESS AND PLAN VISION AND OBJECTIVES

GOAL STATEMENT

To develop a land use planning and implementation framework for the Hamlet of Shepard and surrounding lands which reflects the lifestyle interests and/or concerns of the residents and landowners; and addresses the longer-term goals of both the M.D. of Rocky View and the City of Calgary with respect to future development of the area.

1.0 INTRODUCTION

1.1 Context

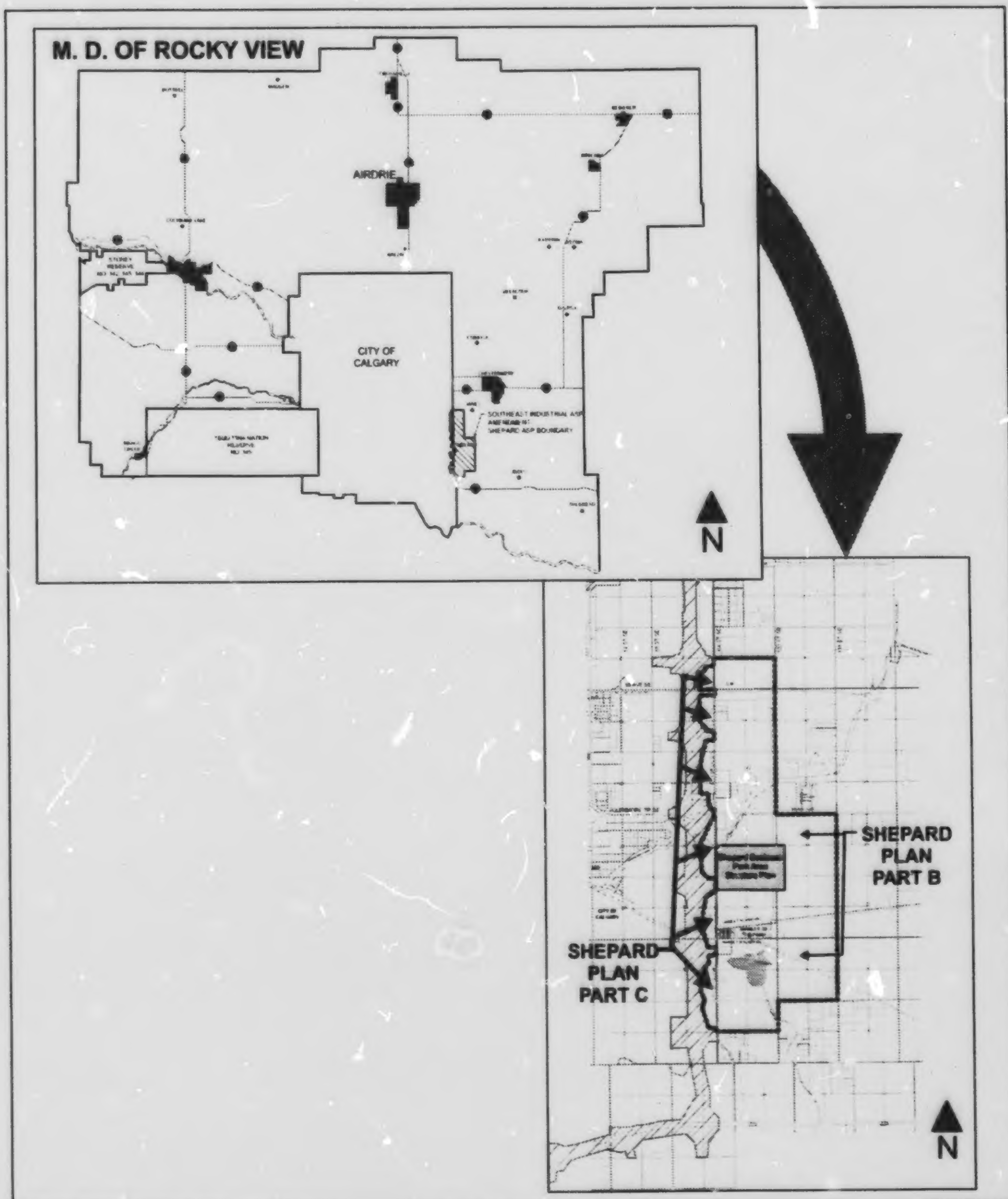
A Terms of Reference to guide preparation of the Shepard Area Structure Plan was approved by both City Council and the M.D. of Rocky View Council in 1998 March. The terms of reference included provisions for a public consultation program.

In 1998 November, the M.D. of Rocky View and the City of Calgary adopted an Inter-municipal Development Plan (IDP) that outlines long-term inter-municipal planning and development considerations. The Inter-municipal Development Plan supported preparation of the Shepard Area Structure Plan.

The IDP states "It is anticipated that the Shepard Area Structure Plan will result in the development of a land use planning and implementation framework for the Hamlet of Shepard and surrounding lands and will address the longer-term goals of both municipalities with respect to the future development of the area."

Figure A-1 delineates the general location of the Plan area within a regional context.

Figure A-2 delineates the Plan area inclusive of land within both the M.D. of Rocky View and The City of Calgary. The lands contained within the Shepard ASP are legally described as:

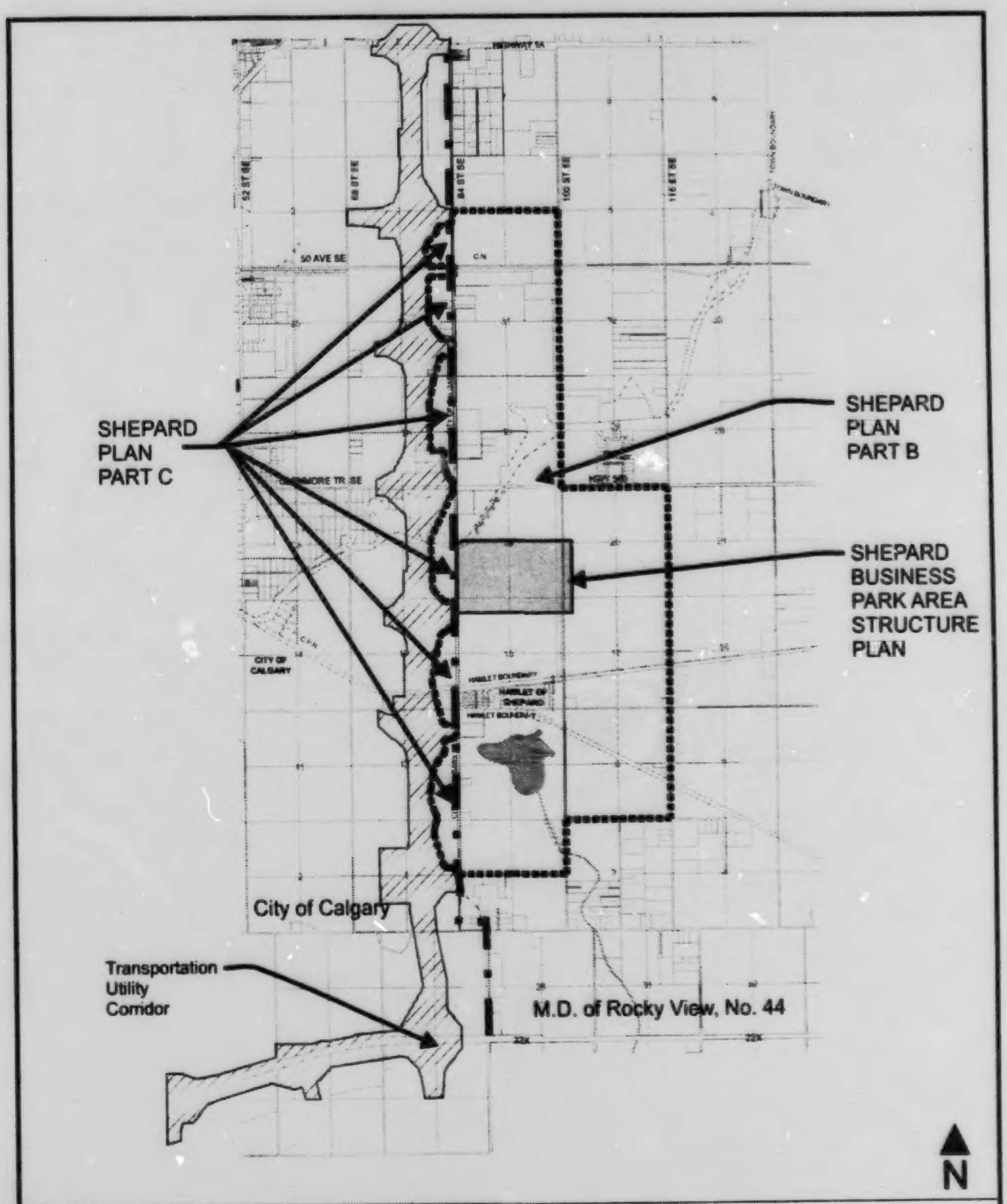


PROJECT
Southeast Industrial ASP Amendment/ Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23, 24 - Rge 28, 29 - W4M

LEGEND

DRAWING TITLE
Plan Area - Regional Context

Date: February 2001
Not to scale
Figure No.: A-1



PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44

Twp 23, 24 - Rge 28, 29 - W4M

DRAWING TITLE

Plan Area

LEGEND

▬ ▬ Southeast Industrial ASP Amendment/ Shepard ASP Boundary

— · Municipal Boundary

Date: December 2000

0 200 400 800 1200 Metres

Figure No.: A-2

Within the M.D. of Rocky View (**Part B**):

The Following Sections in Township 23, Range 28 West of the Fourth Meridian:

- The North Half of Section 6.
- All of Sections 7, and 8.
- All of Sections 30 and 31.
- All of the East Half of Section 17, the South West of Quarter of Section 17, and portions of the North West Quarter of Section 17.
- The South Half of Section 18 and Portions of the North Half of Section 18.
- North Half of Section 19.
- The entire East Half of Section 20, the North West Quarter of Section 20 and Portions of the South West Quarter of Section 20.

The Following Sections in Township 24, Range 28 West of the Fourth Meridian:

- The North Half of Section 6

Those lands consisting of Stage 1 of the Shepard Business Park Area Structure Plan (Bylaw C-4922-98 adopted June 1998) are specifically excluded from the Plan Area. They include:

- A portion of the South West Quarter of Section 20
- The South Half Section 19
- A portion of the North Half of Section 18
- A portion of the North West Quarter of Section 17

Within The City of Calgary (**Part C**):

All lands to the east of the Transportation/Utility Corridor (TUC) within Township 23, Range 29 West of the Fourth Meridian in the following Sections:

- A portion of the North East Quarter of Section 1
- A portion of the East half of Section 12
- A portion of the East half of Section 13
- A portion of the East Half of Section 24
- A portion of the East Half of Section 25
- A portion of the East Half of Section 36

The Following Sections in Township 24, Range 29 West of the Fourth Meridian:

- A portion of the South East Quarter of Section 1

The comprehensive Plan area encompasses approximately 10.5 sections or 27 square kilometres.

1.2 Population Growth

An Area Structure Plan requires the estimation of the Plan Area's future population. The population of the Plan area is difficult to estimate as Plan area growth is anticipated to be both residential and non-residential.

The Plan contains policies that should permit the in-filling and expansion of the Hamlet of Shepard. The in-filling and expansion is estimated to accommodate three times Shepard's current population. The Hamlet's current population is an estimated 154 persons and if expanded may possibly grow to an estimated 450 persons.

Additional long-term population growth may be accommodated on lands south of 114th Avenue that are presently in agriculture.

1.3 Public Involvement

In accordance with the approved Terms of Reference adopted by both the Council of the M.D. of Rocky View No. 44 and the Council of The City of Calgary in March of 1998, four (4) Open Houses, three (3) focus group meetings, and one (1) design workshop were held. In addition, adoption of the Shepard ASP requires two (2) statutory public hearings, one held at the M.D. of Rocky View Council Chambers and one held at The City of Calgary Council Chambers.

A statutory Public Hearing was held on May 1, 2001 where upon **Part B** of this Plan was adopted by M.D. of Rocky View No. 44 Council (Bylaw C-5330-2001).

A statutory Public Hearing was held on May 7, 2001 where upon **Part C** of this Plan was adopted by The City of Calgary Council Bylaw 7P2001.

A Steering Committee had been established based on the Terms of Reference. The Committee consisted of three (3) members of the public, two from the M.D. of Rocky View, and one from the City of Calgary, two (2) Municipal District of Rocky View Councillors, and two (2) City of Calgary Aldermen. City staff, M.D. staff and the Consultants assisted the Steering Committee. The role and responsibilities of the Steering Committee were outlined in the terms of reference.

Furthermore, a series of individual stakeholder meetings provided better understanding of specific concerns. Stakeholders included Alberta Environment, Alberta Infrastructure, Canadian Pacific Railway, Canadian National Railway, and a number of individual landowners in the Plan area.

1.4 Opportunities and Constraints in the Plan area

Plan area stakeholders and the consultant team identified and evaluated the following opportunities and constraints as part of the Shepard ASP process (also refer to **Appendix A**):

a. **Transportation** – Participants identified four major transportation issues in the Plan area: Major and internal roads, the Transportation Utility Corridor (TUC), Calgary Transit, and the Railway.

General concerns about roads in the Plan area included width, flooding, lighting, intersection construction and safety, the state of disrepair, and access. Glenmore Trail/SH #560, 84th Street/84th Street, 100 Street/Range Road 285 and 114th Avenue/Twp. Rd. 232 are the major collectors in the Plan area and the roads that will accommodate the majority of new development traffic in the Plan area. These roads experience moderate to high levels of traffic flows and new development needs to address the ability of the existing road infrastructure to accommodate additional traffic movements both in the short and long-term.

The TUC was established to protect the right-of-way for the future East Freeway (part of a "ring road" to encircle Calgary) as well as rights-of-way for provincial and municipal utilities. Stakeholder concerns included access, the disposition of small parcels on the east side of the TUC, and the arrangement of the road hierarchy.

When discussing Calgary Transit, stakeholders expressed interest in transit availability.

Hamlet residents also expressed the need for noise attenuation – especially from train horns and whistles - and suggested implementation of railway crossing arms.

b. **Infrastructure** – Three main infrastructure issues in the Plan area included the Shepard Constructed Wetland Project, drainage and flooding, and drainage and roads.

The Shepard Constructed Wetland Project is a major regional drainage consideration affecting the Plan area. It is intended to provide a cost-effective and appropriate solution for storm water servicing to approximately twenty-two square miles of land within the M.D. of Rocky View and the City of Calgary. The City of Calgary, in partnership with Alberta Environment, is preparing the wetland project. Plan area stakeholders were primarily concerned about how the wetland project would affect the Shepard ditch, the goose and mosquito population, the water table, pathway linkages, and the Western Headworks Canal, owned and operated by Alberta Environment. Furthermore, stakeholders were eager to see how the constructed wetland could be an amenity with passive recreation opportunities.

Regarding general drainage and flooding, stakeholders were interested in how the Shepard Plan could address ditch grading, health concerns, flooding, flood protection, high moisture problems, high water tables, water wells, and sewage.

Stakeholders also expressed concern about road drainage, particularly roadbed erosion and culverts that are clogged and in poor locations.

c. **Land Use** – With different land uses in the Plan area, stakeholders had varied opinions about future land use. The main issues concerned hamlet and industrial land uses and uses on surplus parcels of the TUC. Regarding the Hamlet, residents were interested in lot size, history retention, residential growth, infrastructure servicing, home occupations, conflicting land uses, and maintaining a sense of place and small town feel. Issues surrounding industrial land use included the proximity to the Hamlet, site and building appearance, access, and coordinated growth. Surplus TUC parcels are adjacent to the M.D. of Rocky View and need to be planned with joint municipal involvement.

Stakeholders also asked the following questions. What are appropriate institutional land uses? What are appropriate commercial land uses? How can Municipal Reserve (MR) and Environmental Reserve (ER) include community facilities, buffering, and pathway linkages? How will open space and recreation facilities fit into the Plan area? How can differences between urban and Country Residential uses be alleviated? How will urban growth impact agriculture?

d. **Plan Process** – Throughout the Shepard Plan development, stakeholders asked the following questions about the plan process: How are bylaws enforced? How does the Plan affect zoning? How much knowledge will we have before the Plan goes to the respective Councils?

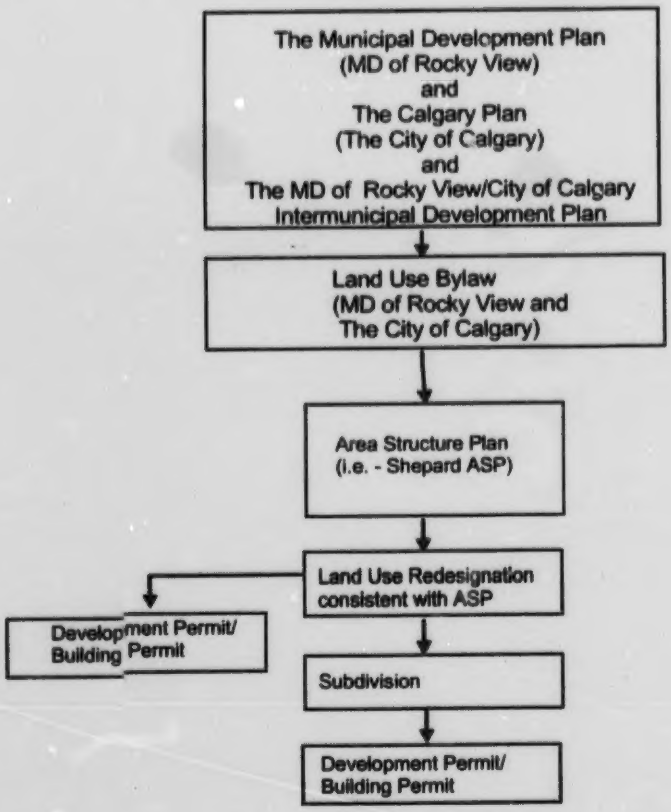
e. **Inter-municipal Issues** – Inter-municipal issues identified during the Shepard Plan preparation included regional utilities, the proximity to Calgary and urban growth pressures, joint servicing, revenue sharing, co-ordination of uses, land acquisition, regional roads, and annexation.

f. **Environment** – The following environmental issues were identified throughout the Shepard Plan preparation: the effect of industry on the environment, water drainage, regional pathway, impact of growth on the environment, and wildlife habitat areas.

2.0 THE PLANNING PROCESS

2.1 Purpose of the Plan

The Shepard Plan defines a planning and development framework to guide future growth in the Plan area by establishing a range of appropriate and compatible land uses, within a sequential development strategy. The Shepard Plan supports both the Rocky View Municipal Development Plan and the City of Calgary's Calgary Plan by adding another layer of detail to this particular area. The Shepard Plan considers existing land uses, surrounding developments, potential future land uses, public input, physical and environmental characteristics, infrastructure requirements, and growth trends. The Shepard Plan outlines a vision that the Plan structure and the policies promote. The Shepard Plan fits into a general planning process illustrated as follows (note: there will be process differences by municipal jurisdiction. The following chart is general and applies to both municipalities):



2.2 The Legislation

The Shepard Plan flows from the fundamental purpose of the M.D. Rocky View/City of Calgary Inter-municipal Development Plan:

> **"...to identify an area of mutual municipal interest and to establish policy direction and processes to address inter-municipal issues that may arise within that area."**

The Shepard Plan has been prepared in accordance with provincial requirements outlined in s.633 of the Municipal Government Act (MGA) (Statutes of Alberta, 1994, Chapter M-26.1).

633 (1) For the purpose of providing a framework for subsequent subdivision and development of an area of land, a council may, by bylaw, adopt an area structure plan.

(2) An area structure plan

(a) must describe

(i) the sequence of development proposed for the area,
(ii) the land uses proposed for the area, either generally or with respect to specific parts of the area,
(iii) the density of population proposed for the area either generally or with respect to specific parts of the area, and
(iv) the general location of major transportation routes and public utilities,

and

(b) may contain any other matters the council considers necessary.

3.0 VISION AND OBJECTIVES

3.1 Plan Area Vision

Participants in the open houses and design workshop suggested the following plan area vision, which was supported by the Shepard Plan Steering Committee:

> **"The Shepard area will be a viable community that ensures a variety of lifestyles, where residents can live and work, in a business area that grows in harmony with the social and physical environment."**

3.2 Plan Objectives

The following objectives are from the Shepard ASP Terms of Reference and provide focus to the Shepard Plan. Collectively they represent the future aspirations of the community, M.D. of Rocky View, and the City of Calgary.

Objectives of the Shepard Plan are as follows:

a. To develop a public participation and consultation program as a key element of the Plan preparation.

b. To evaluate options and recommend a land use strategy for the Hamlet of Shepard including such issues as buffering, servicing, etc.

c. To develop policies which should consider:

   i. Lands identified in the Southeast Industrial ASP, which are located between the TUC and 84th Street SE in the City of Calgary.
   ii. Identification and protection of a long-term industrial growth corridor for the City of Calgary.
   iii. Lands within the M.D. of Rocky View east of 84th Street, which are currently experiencing, pressure for development.
   iv. Revenue sharing and future annexation options for potential industrial development within the MD.

d. To develop a transportation plan that will address both short and long term development requirements.

e. To develop a servicing plan that will address both short and long term development and will specifically set out servicing standards for limited service industrial uses, pre-servicing requirements, storm water management options, etc.

f. To identify and protect both short and long term options for the Shepard Constructed Wetland Project.

g. To develop an open space strategy including municipal reserve policies, regional open space linkages, and the protection of environmentally significant areas.

h. To address environmental issues including air, water and land.

PART B MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44 LAND USE STRATEGY

(Adopted by the Municipal District of Rocky View No. 44 as an Area Structure Plan May 29, 2001, Bylaw C-5330-2001)

PART B – MUNICIPAL DISTRICT OF ROCKY VIEW NO. 44 LAND USE STRATEGY

1.0 LAND USE STRATEGY – GENERAL

1.1 Land Use Strategy

a. Applications for redesignation, subdivision and/or development in the Plan area should conform to the land use strategy and phasing sequence of subdivision and development illustrated in **Figure B-1** and the policies of this plan.

b. Redesignation, subdivision and/or development applications that may not conform to the Phasing Sequence shown on **Figure B-1** may be allowed without amendment to this Plan, provided that they are accompanied with rationale that justifies out of phase approval and an analysis of the additional impact on adjacent uses and on the transportation network, to the sole satisfaction of the Municipality.

c. Applications for redesignation, subdivision and/or development should be accompanied by a Storm Water Management Plan until such time as the Shepard Constructed Wetland Project is developed or a Regional Sub-basin Drainage Study has been completed.

d. Owners of land that is the subject of an application for redesignation, subdivision and/or development may be required to enter into an agreement that requires participation in a regional storm water system and/or a Deferred Services Agreement. The Municipality may require these agreements to be registered on the title(s) of the land(s).

e. Applications for redesignation, subdivision and/or development may be required to be accompanied by a Phase 1 Environmental Site Assessment.

2.0 HAMLET OF SHEPARD LAND USE POLICIES

2.1 Hamlet Background

The Hamlet of Shepard has historically been a residential area with a mix of local commercial uses. The Hamlet once supported a range of community services such as a general store/post office, hotel, livery barn, a blacksmith, and a pool hall. Today the Hamlet of Shepard contains a community hall and residences along with some industrial uses. Shepard is located in an area with a high water table, a history of flooding and some water quality problems. These issues, along with the retention of a small rural community atmosphere, need to be addressed as the hamlet grows and develops, potentially to become a unique live/work community.

2.1.1 Hamlet Residential

a. Hamlet expansion shall be consistent with the M.D. of Rocky View Municipal Development Plan (MDP) policies.

b. Hamlet residential expansion to the south will be considered once the right of way requirements have been determined for the re-alignment of 114th Ave./Township Road 232.

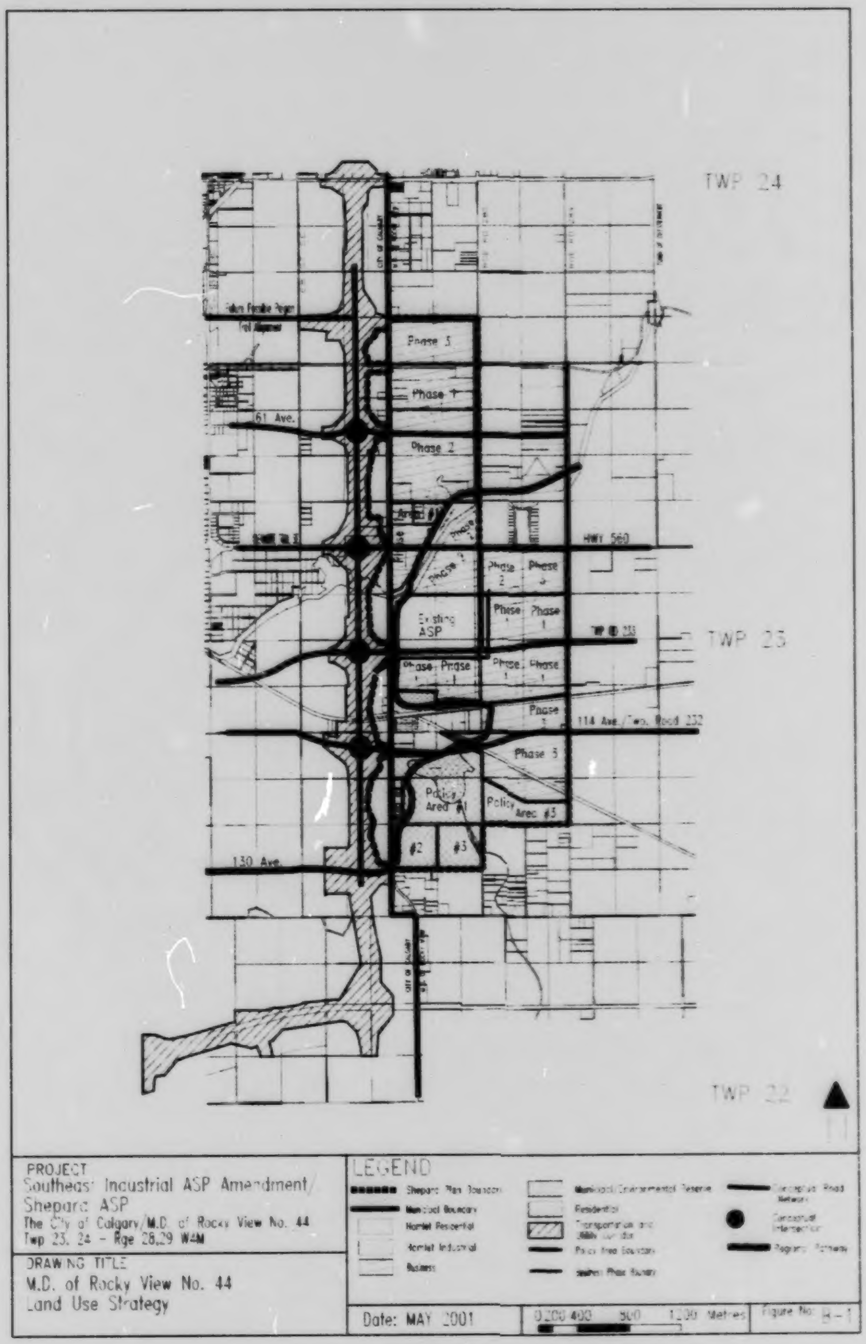
c. A Conceptual Scheme shall be prepared prior to residential infilling or expansion of the hamlet, containing the following information to the satisfaction of the Municipality:

   i. A servicing proposal addressing the provision of water supply and sanitary servicing in accordance with Municipal standards;
   ii. Proposed parcel size and density;
   iii. The immediate and long-term means of access;
   iv. The compatibility of the proposal with existing and future land uses within and adjacent to the hamlet;
   v. The impact of the proposal on the future Township Road 232 alignment;
   vi. A Storm Water Management Plan in accordance with **Section 1.1.c**, including an examination of the impact on the alignment of Township Road 232;
   vii. Consideration of the possibility of a constructed wetland to meet current and future needs, as well as linkages to trail and open space systems; and
   viii. Any other matter the Municipality deems necessary.

2.1.2 Home Based Business in the Hamlet of Shepard

Through its MDP policies, the Municipality supports the home based businesses as a method of business diversification within the Plan area. Home based businesses provide opportunities for live-work relationships and support community based economies.

a. Home based businesses should cater to a wide range of lifestyle and livelihood aspirations and foster more economic diversification within the municipality.
b. Given the small size and rural setting of the hamlet, small businesses with no employees other than the principle resident, generating no more than two business-related visits per day should be permitted.


TWP 24
Phase 3
Phase 1
61 Ave.
Phase 2
Area #1
HWY 560
Phase 2
Phase 4
Existing ASP
Phase 1
Phase 1
TWP 25
Phase 1
Phase 1
Phase 1
Phase 1
Phase 1
114 Ave./Twp. Road 232
Phase 3
Policy Area #1
Policy Area #3
#2
#3
130 Ave.
TWP 22
PROJECT
Southeast Industrial ASP Amendment/ Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23, 24 – Rge 28,29 W4M
DRAWING TITLE
M.D. of Rocky View No. 44
Land Use Strategy
LEGEND
Shepard Plan Boundary
Municipal Boundary
Hamlet Residential
Hamlet Industrial
Business
Municipal/Environmental Reserve
Residential
Transportation and Utility Corridor
Policy Area Boundary
Phase Boundary
Conceptual Road Network
Conceptual Intersection
Regional Pathway
Date: MAY 2001
0 200 400 800 1200 Metres
Figure No: B-1

2.1.3 Hamlet Industrial

a. Future Hamlet Industrial uses should consider the impact on adjacent land uses, and should contain businesses that are storage and warehouse oriented in order to minimize the level of traffic in the hamlet.

b. Applications for redesignation, subdivision and/or development for Hamlet Industrial uses or industrial expansion may be required to include the following to the satisfaction of the Municipality:

   i. A Storm Water Management Plan consistent with Section 12.0.
   ii. An Operational Plan;
   iii. A Chemical Management Plan;
   iv. An Emergency Management Plan;
   v. A Landscaping Plan;
   vi. A Traffic Impact Assessment in accordance with the policies in Section 8.0; and,
   vii. A Construction Management Plan.

c. Redesignation, subdivision and/or development proposals for Hamlet Industrial uses should consider alternate methods of ingress/egress (other than Township Road 232), such as the use of Range Road 285.

d. Hamlet Industrial development should be restricted to indoor Business Uses. Any development proposal that includes outdoor uses shall consider the impact on adjacent uses.

e. Industrial development proposals that include hazardous or noxious uses and/or high water volume uses should be directed to the business areas outside of the hamlet.

f. The Municipality may require a landowner to register a caveat or restrictive covenant respecting Architectural Guidelines as part of a development or subdivision approval.

g. Notwithstanding 2.1.3 b. above, the Municipal District of Rocky View may require the adoption of a Conceptual Scheme prior to the approval of a redesignation, subdivision or development application for Hamlet Industrial uses.

2.1.4 Hamlet Commercial

Land use within the Hamlet of Shepard could be diversified to include a small-scale local commercial component. This component should be designed to be compatible with the adjacent uses and the design should reflect the Hamlet's history as a former CP Rail settlement. Ideally, the commercial site will be located in an area with good access to Township Road 232 and/or 84th Street.

a. The Municipality supports the development of local commercial uses in Hamlets.

b. Hamlet Commercial uses should provide an amenity to the hamlet and be compatible with adjacent uses.

c. Hamlet Commercial uses should offer services to the local residential and the adjacent agricultural and business community.

3.0 AGRICULTURE LAND USE POLICIES

Historically, the majority of the Plan area has been used for agriculture. The soils in the Plan area consist of a variety of C.L.I. (Canada Land Inventory) soil classifications, ranging from class 1 to class 5 (from no limitations to severe limitations for agricultural use). Soil classes are shown on the map in **Appendix B**.

a. The Municipality encourages the protection of agricultural land in accordance with MDP and Intermunicipal Development Plan (IDP) policies, and supports the retention of agricultural uses on full quarter sections and smaller farmable units within the Plan area.

b. Agricultural land within the Plan area is intended to remain agricultural in nature until they are approved for redesignation, subdivision and/or development in accordance with the policies of this Plan.

c. Redesignation applications that propose to change agricultural uses to Residential uses and/or Business Uses should be compatible with existing development in the area and future proposed land uses.

d. First-parcel out or farmstead isolations shall be reviewed in accordance with the criteria of the MDP.

e. Intensive agricultural operations are discouraged from locating within areas adjacent to existing or future Residential Land Uses.

f. Development applications for intensifying existing agricultural uses should be required to consider the following:

- i. Minimum Separation Distance;
- ii. Compatibility with existing and planned future land uses;
- iii. Details of livestock confinement;
- iv. Preparation of a Waste Management Plan;
- v. Preparation of a Chemical Management Plan; and,
- vi. Any other matters the Municipality deems necessary.

4.0 RESIDENTIAL LAND USE POLICIES

The land use strategy encourages the infilling of existing residential areas, prior to the creation of new Residential Uses. The land use strategy identifies other Policy Areas that may be considered for long-term residential uses through the preparation and adoption of conceptual schemes.

4.1 Residential Policy Area #1

a. Areas considered appropriate for short term Residential Land Use in the Plan area are immediately east of and adjacent to Shepard Road south of Township Road 232 and east of Shepard Road north of SH #560. These areas, shown as Residential #1 on **Figure B-1,** should be further developed and in filled prior to any new residential redesignation, subdivision or development in the Plan area, identified as Residential Areas # 2 through #4 of this Plan.

b. Prior to the infilling of existing residential uses as shown on **Figure B-1**, a Conceptual Scheme shall be prepared to the satisfaction of the Municipality, which should include the following:

- i. Consideration of agricultural policies contained in the MDP and Section 3.0 of this Plan;
- ii. The completion of an urban overlay that ensures that the area will be able to accommodate future urban development;
- iii. A Traffic Impact Assessment;
- iv. Effect on natural areas;
- v. Consideration of the impacts of any proposed development on the local road system;
- vi. Consideration of the compatibility with existing rural and urban development;
- vii. Water and sanitary servicing;
- viii. Proposed parcel size and density;
- ix. Proposed immediate and long-term access and internal road circulation;
- x. Consideration of the Shepard Constructed Wetland Project, or if the Shepard Constructed Wetland Project does not proceed, the existing slough;
- xi. A Storm Water Management Plan;

xii. An Archaeological/Historical Impact Assessment; and,
xiii. Any other matter the Municipality deems necessary.

4.2 Residential Policy Area #2

The redesignation, subdivision and development of this area can proceed in accordance with one of the following two scenarios:

a. With the establishment of the Shepard Constructed Wetland Project, land uses would be limited to constructed wetlands, interpretive areas and open space, unless residual lands are available for residential development, and supported by a conceptual scheme.

b. If the Shepard Constructed Wetland Project does not proceed, Residential Land Uses may be permitted provided:

   i. A Regional Sub-basin Drainage Study is first completed for the sub basin in which the Policy Area is located; and,

   ii. A Conceptual Scheme is completed for the Policy Area that includes an assessment of the impact of any subdivision and development on the existing slough located in the Policy Area and the items listed in 4.1b. of this Plan.

c. Existing and proposed uses in this area shall not alter or develop the land in any way that may be detrimental to natural drainage into the existing slough.

d. Protection and enhancement of the burrowing owl habitat and short-eared owl habitat in this Policy Area shall be considered in all applications for future use and development of this area.

e. Prior to the development of the Shepard Constructed Wetland Project, redesignation of the affected land(s) to Direct Control (DC) District is required. The DC Bylaw must include provisions that address the following items:

   i. A review of the impact of the project on local aquifers and near surface water table; and,
   ii. An outline of the formulation for an ongoing program of mosquito control.

4.3 Residential Policy Area #3

a. With the establishment of the Shepard Constructed Wetland Project, appropriate land uses would be limited to constructed wetlands, interpretive areas and open space, unless residual lands are available for residential development, and supported by a conceptual scheme.

b. If the Shepard Constructed Wetland Project does not proceed, Residential Land Uses may be permitted provided a Conceptual Scheme is completed for the Policy Area that includes an assessment of the impact of any subdivision and development the on the existing slough and the items listed in 4.1b. of this Plan.

4.4 Residential Policy Area #4

This area may be suitable for a long-term transition (possibly beyond the life of this Plan) to Residential Land Uses provided that the residential designated lands located to the south have been largely subdivided and developed.

a. Prior to the transition of Policy Area #4 from agricultural uses to residential uses, a Conceptual Scheme shall be prepared to the satisfaction of the Municipality, as guided by Section 4.1b of this Plan.

5.0 BUSINESS AREA LAND USE POLICIES

The Plan area consists of existing and approved Business Uses. The business areas are intended to consist of large, limited service business parcels existing in harmony with other land uses. Business development pressures exist in this area due to factors such as:

- The Tri-party Agreement with CN, CP, and City of Calgary that supports rail-oriented Business Uses;
- The proximity of the Plan area to the Southeast Industrial area within the City of Calgary that is growing eastward; and,
- The availability of large parcels for subdivision and development.

5.1 Business Area policies

a. The Municipality encourages businesses that enhance, strengthen and diversify the Municipality's economy.

b. New Business Uses are encouraged to locate within the Shepard Business Park ASP rather than within the Plan area.

c. Notwithstanding Section 5.1 b. of this Plan, subdivision, redesignation and development approvals for business areas shall occur in accordance with the Phasing Sequence shown on **Figure B-1**. Proposals to proceed out of phase shall be required to provide rationale for the proposal to the sole satisfaction of the Municipality.

d. As part of a subdivision or development approval, a landowner shall be required to register a caveat respecting a Deferred Services Agreement against title, to the satisfaction of the Municipality.

e. All applications for redesignation, subdivision and/or development for Business Uses shall be required to be within the context of a Conceptual Scheme that includes the following:

   i. Consideration of agricultural policies contained in the MDP:
   ii. A Construction Management Plan that includes Best Management Practices for stormwater throughout the construction phases;
   iii. A Traffic Impact Analysis;
   iv. An outline of how the subject lands can be developed for limited-service Business Uses until such time as piped servicing become available;
   v. A description of access from an internal road system that satisfies Municipal linkage policy;
   vi. A consideration of the long-term impact of the TUC and proposed interchange locations;
   vii. A demonstration that the proposed business use(s) are contiguous to existing business development;
   viii. A park/buffer open space area that integrates the building design with the landscape and other buildings in the area;
   ix. Performance Standards, which will include, but not be limited to, such items as contaminant, odour and noise control, toxic matter handling, garbage storage and a Chemical Management Plan and Emergency Management Plan.
   x. Development Guidelines, which will include, but not be limited to, an Operational Plan, access standards, signage and lighting standards and requirements, a Landscaping Plan, the use of buffers, building design and height requirements, storage and outside display requirements and fencing requirements;
   xi. A Storm Water Management Plan;
   xii. Any other matter the Municipality deems necessary.

f. In addition to the above requirements, applications for redesignation, subdivision and/or development for Business Uses may be required to submit the following studies/plans to the satisfaction of the Municipality:

   i. A Hydrogeological Study,
   ii. A Storm Water Management Plan
   iii. A Chemical Management Plan;

iv. An Emergency Management and Response Plan; and
v. A Landscape Management Plan.

g. Upon application for subdivision, the landowner may be required to enter into a Development Agreement pursuant to Section 655 of the Municipal Government Act respecting provision of the following:

i. Internal roads at the owner's expense and to Municipal standards;
ii. Traffic lights and/or intersectional improvements at the owner's expense;
iii. Power, natural gas, and telephone lines;
iv. Culverts and road approaches to each lot;
v. Utility right-of-way plans and easement documents;
vi. Fire hydrants and all weather access roads for emergency vehicles;
vii. Street and block numbering systems that clearly indicates an address visible from the road approach;
viii. Water for fire fighting as per recommended practice of NFPA, to the satisfaction of the Fire Chief; and
ix. Construction of pathways and recreational facilities at the owner's expense;

h. The landowner may be required to register a caveat or restrictive covenant respecting architectural guidelines.

i. All development adjacent to the Western Headworks Canal shall be set back fifteen metres (50 feet). Seven and one half metres (25 Feet) of the setback area must be landscaped to the satisfaction of the Municipality.

5.2 Phase 1 Business Area Policies

The following policies apply to the identified areas in phase 1 a shown on **Figure B-1**:

a. In the N-½-31-24-28-W4M, applications for subdivision, redesignation and development permits should consider the following issues:

i. The preference to establish transport oriented Business Uses, with particular emphasis on the use of the rail line and potential spur line;

ii. The long-term function of 84th Street and Township Road 240 and the potential long-term impacts on the proposed use;

iii. Long-term linkages to Peigan Trail and 61st Avenue SE in the City of Calgary;

iv. Operational requirements of the electrical substation located in the northeast corner of the NE-31-23-28 W4M; and

v. The possibility that 84th Street and/or Township Road 240 will need to be upgraded, as deemed necessary by the Municipality.

b. In the portions of the S-½-30-23-28-W4M and the N-½-19-23-28-W4M located west of the Western Headworks Canal, applications for redesignation, subdivision and/or development should consider the following issues:

i. The number of small parcels along 84th Street with applications for or approved Business Uses. These parcels shall be comprehensively planned for with limited access to 84th Street;

ii. Proposed Business Uses should be similar to those already existing in this location;

iii. Proposed Business Uses should be contiguous with existing uses on the east side of the TUC within the City of Calgary;

iv. Proposed Business Uses on either side of SH #560 should be similar to each other in scale and character; and

v. Proposed Business Uses shall consider adjacent residential and recreational uses and the impact the proposed use may have on them.

5.3 Phase 2 Business Area Policies

The following policies apply to the identified areas in phase 2 as shown on **Figure B-1**:

In the portions of the S-½-30-23-28-W4M and the N-½-19-23-28-W4M located east of the Western Headworks Canal, applications for redesignation, subdivision and/or development should consider the following issues:

i. Soft-edge treatments such as offices in a campus-like setting or institutional uses.

ii. Access from Range Road 285 or Range Road 284 via internal or parallel service roads. Direct access to SH #560 shall not be permitted.

iii. Buffering between the primary Business Uses and the existing residential/recreational/commercial uses.
iv. Continuity with existing development and consistency with existing uses along SH #560 as it travels through both the City of Calgary and the Municipal District of Rocky View.

5.4 Phase 3 Business Area Policies

a. The following policies apply to the identified areas in phase 3 as shown on **Figure B-1**:

In the NE-20-23-28-W4M and SE-17-23-28-W4M, applications for redesignation, subdivision and/or development should consider the following issues:

i. As expansion of business uses to the phase 3 business area is based on the full build-out of phases 1 and 2, a complete Traffic Impact Assessment should be completed that takes into long-term road alignments and access configuration.

b. In the Phase 3 business area identified as Portion Section 8-23-28-W4M, application for redesignation, subdivision and/or development shall consider edge treatment resulting in a smooth transition between these lands and future residential uses to the south. Applications shall include such criteria as:

- access from 100 Street SE
- landscaping treatment
- site planning
- building mass and architectural guidelines

6.0 INSTITUTIONAL LAND USE

a. Applications for redesignation, subdivision, and/or development permits for institutional uses should only be considered within the context of a Conceptual Scheme, which shall include the items listed in Section 4.0 c. of this Plan, to the satisfaction of the Municipality.

b. Institutional land uses include schools and churches, and both should be integrated with the landscape and be compatible with surrounding land uses.

7.0 ENVIRONMENTAL AND OPEN SPACE POLICIES

There are many environmental considerations in the Plan area that are important ecologically, economically, or aesthetically to residents and visitors in support of both lifestyle and livelihood goals, and include:

- The Shepard Slough Complex;
- Numerous seasonal ponds providing waterfowl habitats and storm water retention.
- Short-eared owl and burrowing owl habitat areas.

The biophysical characteristics and environmental significance of lands in the Plan area should be considered in applications for redesignation, subdivision and development.

Appendix C contains additional detailed information regarding environmental considerations in the Plan area.

a. The Municipality, through its MDP policies, encourages the preservation of significant and/or sensitive natural environments in the development process.

b. The Municipality may require that applicants, in support of a proposal for redesignation, subdivision or development, prepare and submit the following pursuant to the MDP, in form and content satisfactory to the Municipality;

   i. An Environmental Impact Assessment;
   ii. A Geotechnical Report; and,
   iii. An Archaeological/Historical Impact Assessment.

7.1 Topography

Topography in the Plan area is a significant consideration in development applications due to the low lying and flat nature of the area. The minimal topography results in areas of standing water and poor drainage. Flat topography also emphasizes the visual impact of development on the landscape.

Applications for redesignation, subdivision, and/or development permits in areas where low-lying topography is a development constraint should provide an engineering report that:

   i. Outlines mitigation measures to prevent soil erosion;
   ii. Identifies low-lying areas and contains recommendations on how to accommodate development while not interfering with natural storm water flow;

iii. Demonstrates the retention of storm water on-site, with post-development storm water flows equalling pre-development storm water flows; and,
iv. Identifies the protection of natural drainage courses.

7.2 Identified Habitat Locations

Appendix C identifies the short-eared owl and burrowing owl habitat within the Plan area. Burrowing owls are an endangered species with fewer than 1,000 breeding pairs in Alberta.

a. The Municipality supports the protection of wildlife habitat areas. When possible, the wildlife habit areas within the Plan area shall be maintained and protected.

7.3 Open Space, Recreation and Public Land

Public Land consists largely of Municipal Reserve (MR) or Environmental Reserve (ER) land that has been dedicated to the Municipality upon development. Through the planning and development process, the Municipality can require MR and ER to be dedicated. Recreational spaces should be created to serve the residents within the Plan area. Additionally, the Municipality is encouraged to link the existing regional linear park system in the City of Calgary and the Western Headworks Canal pathway with the Plan area.

7.3.1 Municipal and Environmental Reserve

a. The Municipality, through its MDP policies, supports the retention and enhancement of open space and recreation facilities in the Municipality. Linkages between and continuity of these spaces are encouraged.

b. The dedication of Municipal Reserve, the payment of cash-in-lieu of Municipal Reserve or the placement of a Deferred Reserve Caveat shall be determined by the Municipality in accordance with MDP policy, Section 666 of the **Municipal Government Act (MGA)** and a Recreation Master Plan. If Municipal Reserve is to be dedicated, the Municipality can consult with the City of Calgary pursuant to the provisions of the M.D. of Rocky View / City of Calgary IDP.

c. When dedicated, Municipal Reserve shall consist of land that is equivalent in nature to the lands that are the subject of the subdivision application.

d. The Municipality may consider linear MR parcels dedicated adjacent to ER, in support linear parks. In these instances, parcels may be considered as equivalent to developable lands.

e. The Municipality, in accordance with MDP policy and Section 664 of the MGA, shall determine dedication of ER in the Plan area. Environmental Reserve Easement (ERE) is another option and should be determined on a site-specific basis by the Municipality. Such sites include, but are not limited to, areas adjacent to drainage courses and low-lying areas that retain or convey natural drainage.

7.4 Trails – Regional and Local

Local residents have expressed a desire for extended linear parkways and green spaces in this area. These linear park spaces at the Western Headworks Canal location would form a logical extension to the City of Calgary Urban Parks Master Plan.

a. The Municipality, through its MDP policies, encourages regional recreational trails as passive recreational opportunities within existing and developing communities. A balance between linear parks and trails and more conventional parks (i.e. sports fields, tot lots) is encouraged.

b. Proposals for development in the vicinity of Western Headworks Canal Pathways should consider complementary trail linkages to the Hamlet of Shepard, the City of Calgary, and the Town of Chestermere.

c. The width and dedication of land for a continuous linear park system through the Plan area shall be at the discretion of the Municipality as a condition of subdivision. In addition, landscaped buffers along the canal should be provided on adjacent lands as part of development.

d. Trails may be established in new residential areas or areas undergoing infilling, specifically promoting linkages between communities and recreational areas.

8.0 INFRASTRUCTURE

8.1 Infrastructure

The Infrastructure for most of the Plan area is rural in nature; water is provided by wells and sewage is disposed of via septic fields. Roads are constructed to rural standards with ditch and swale and gravel shoulders. With the increased development in the area, the services may become more urbanized. Policies provided in this Plan will allow for the study and the determination of standards appropriate for development and construction, and for the installation of these services as development proceeds.

8.2 Road System - General Policies

The following roads in the Plan area are classified as follows:

Road	Calgary Transportation Plan (City of Calgary)	Intermunicipal Development Plan (M.D. of Rocky View)
Glenmore Trail / SH #560	Expressway	Key Link – Dangerous Goods
Peigan Trail	Expressway	Not constructed
114th Ave. / Twp. Rd. 232	Major Road	Key Link – Truck Route
61st Avenue	Major Road	Not constructed
106th Avenue	Major Road	Not constructed
130th Avenue	Major Road	Not constructed
50th Ave. /Twp. Rd. 240	Rural Road	Key Link – Truck Route
84th Street	Rural Road	Boundary Road
100th Street/Range. Rd. 285	Partially constructed	

In order to provide for efficient development and access, the two municipalities will coordinate the planning and transportation links in the Plan area.

The Transportation and Utilities Corridor (TUC) will be a major regional freeway that traverses the study area and will be constructed by the Province of Alberta. Although construction of this portion of the TUC is not scheduled until the end of the 20-year time horizon, scheduling of construction should be based on the development of the South East Industrial area in the City of Calgary and recognition of the heavy volumes of truck traffic and the commodity movements.

Appendix D contains a diagram of a +30-year conceptual transportation network promoting linkages between the municipalities. It is simply one picture of a possible future transportation scenario considering the ultimate build out of the TUC. Actual build-out will be based on funding and need.

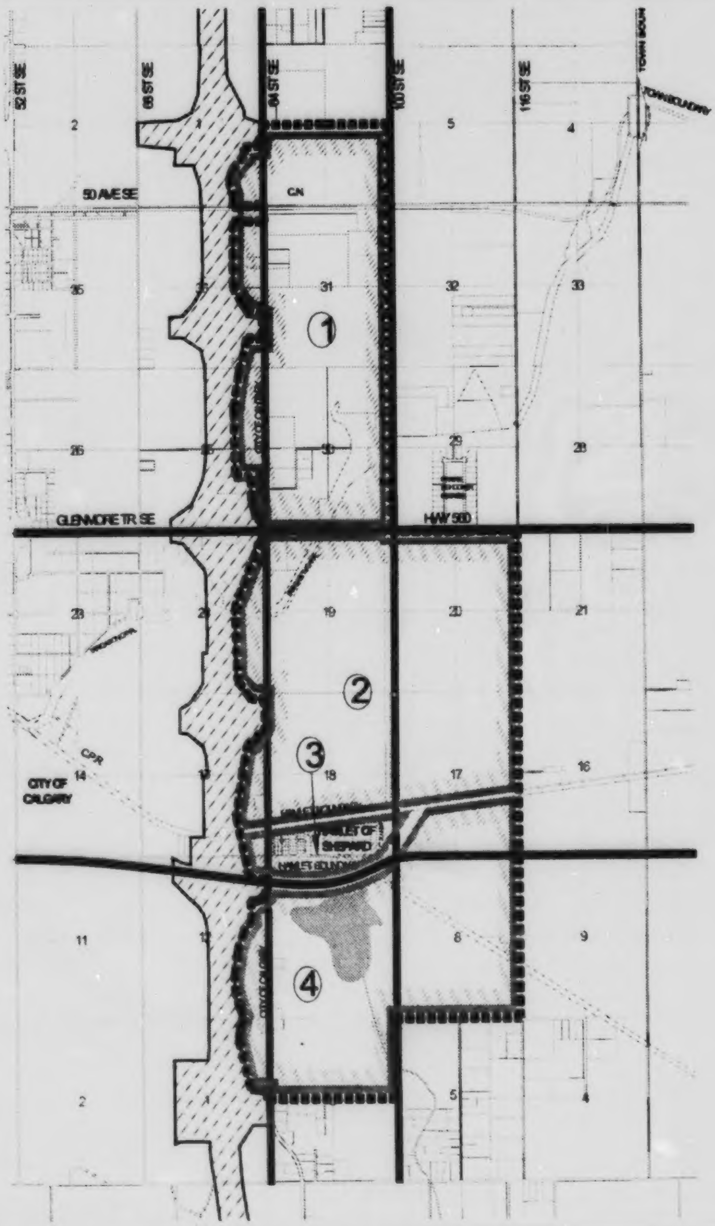
Four major traffic-generating areas have been identified within the Plan area (for lands that are both in the M.D. of Rocky View and the City of Calgary), and prior to any development occurring, within these areas, a Traffic Impact Assessment should be completed.

a. **Figure B-2** delineates the areas where a Traffic Impact Assessment shall be required:

Area 1 - North of Glenmore Trail/SH #560.
Area 2 - South of Glenmore Trail/SH #560 and north of the Hamlet.
Area 3 - The Hamlet of Shepard and potential expansion area.
Area 4 - South of the 114th Ave./Twp. Rd. 232 Realignment.

b. In addition to the requirements outlined in **Appendix D**, all Traffic Impact Assessments in the four identified areas must consider the following general items:

  i. Traffic volumes, existing and projected at development build out, including projected vehicle types and commodities being transported;
  ii. Turning movements from the area to the major connector road;
  iii. Origin/Destination projections, internal and external to the area;
  iv. Improvements required to existing roadways that result from the proposed development;
  v. Intersectional upgrades required to provide acceptable level of service for build out, including signalization, turning lanes, acceleration and deceleration lanes;
  vi. Cumulative impacts on identified major collectors, considering existing and proposed development;
  vii. Linkages to adjacent areas beyond the study area;
  viii. Access implications such as restrictions, closures and alternative access construction;
  ix. Phasing plan for the implementation of the improvements and the timing for the development; and,
  x. A review roadway classifications (i.e. access to expressway vs. access to a road).



PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44

Twp 23, 24 - Rge 28, 29 - W4M

DRAWING TITLE

Areas Requiring a Traffic Impact Analysis

LEGEND

▬ Major Connector Roads

▨ ④ Traffic Impact Study Areas

Date: December 2000	NTS	Figure No.: **B-2**

8.3 Railways

The Plan area contains a CP Rail Line southeast of the Hamlet of Shepard and a CN Rail Line at Township Road 240. In addition, an abandoned right of way is located north of Township Road 232. A large CP inter-modal rail yard lies just west of Plan area.

a. The City of Calgary and the M.D. of Rocky View will monitor controlled crossings on the CP rail line at 116th Street, 84th Street, Township Road 240 and Township Road 232. At the same time, the City of Calgary and the M.D. of Rocky View will pursue whistle cessation in the Shepard area.

b. Upon receiving notification by CP rail of any interruption of road access, the City of Calgary will notify the Municipality of Rocky View, the Rocky View School District, and the Shepard Community Association.

c. CN, CP, Transport Canada, the City of Calgary, and the M.D. of Rocky View are encourage to continue an ongoing dialogue concerning development in the Shepard area.

d. The Applicant/Owner of land adjacent to Railway property shall install and maintain at his own expense, a chain link fence of minimum 1.83 metre height along the mutual property line.

e. Any proposed alterations to the existing drainage pattern affecting Railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

f. Appropriate mitigation measures for various development proposals adjacent to the Railway could include berming and/or setbacks to the satisfaction of the approval authority in consultation with the railways.

9.0 WATER, SEWER AND STORM WATER SERVICING

Water is a key issue for all land development and subdivision, as water quality and quantity are important to the quality of life. Consequently, water is an issue in the Plan area. Stakeholders raised concerns about a high water table, flooding, poor quality well water, and ability to provide fire protection for future industrial developments.

In the long-term, it is possible that the City of Calgary may apply for annexation of part of the Plan area, and if successful, would be able to supply piped surface water. It might also be possible that City of Calgary policy may change, and that the City would agree to provide piped surface water to the area notwithstanding that it is not within the City's boundaries.

9.1 Water Supply

There are three options to provide drinking water in the Plan area:

1. For the landowner to drill new wells when existing wells are deemed to be unsatisfactory, into deeper, new aquifers.
2. For the individual landowner to truck in drinking water to be stored in cisterns.
3. For area landowners to develop one communal well source with a treatment facility.

   a. The Municipality supports a range of water, sewer, and storm water servicing options for development in accordance with MDP policies and Municipal servicing standards.
   b. The Municipality encourages surface water extension and tie-ins wherever possible to reduce groundwater reliance.
   c. Due to age of existing wells in the area, and to eliminate possible contamination, the Municipality encourages new wells to be drilled and cased according to Provincial standards.
   d. All future developments should implement water conservation methods.

9.2 Sewage Treatment and Disposal

Currently the Plan area dwellings and structures use conventional field and tile septic fields. It is also important to note that portions of the Plan area have high water tables, which is a limitation on the installation of septic fields.

   a. On-site sewage disposal systems shall be developed in accordance with MDP policies and Provincial standards.

10.0 STORM WATER

At present, lands within the Plan area drain into two specific outlets. Land north of the Western Headworks Canal drain directly into the canal, which then flows easterly into Chestermere Lake. These lands are predominantly agricultural. Lands south of the canal drain to the Shepard Slough Complex, and specifically to the S1 slough.

The proposed Shepard Constructed Wetland project is an attempt to solve a storm water moratorium for lands within the City of Calgary. The Shepard Constructed Wetland Project proposes to modify the existing S1 slough in the Shepard Slough Complex. The purpose of the constructed wetland would be to retain run-off, improve the water quality and control peak discharge rates. Modifications to the drainage pattern in the Plan area and the S1 slough itself will be required to implement the drainage plan.

10.1 General Storm Water Policy

a. In the absence of a Regional Sub-basin Drainage Study for the Plan area, on-site post-development storm water flows shall not exceed pre-development storm water flows, with a maximum release rate as approved by Alberta Environment. A regional sub-basin drainage study for the Plan area is preferred. Criterion for the development of a regional storm water management system is to be determined in consultation with the City of Calgary and Alberta Environment.

b. Upon application for redesignation, subdivision and/or development the Municipality may request, at the sole expense of the developer, the preparation of a Storm Water Management Plan. The Municipality encourages the incorporation of existing or constructed wetlands as storm water retention areas in the design of subdivisions

c. Developments proposed with rural road cross-sections must include a conveyance system (i.e. swales, ditches, ponds) that shall be designed to accommodate runoff from a 100-year return period event. Snowmelt conditions with frozen ground conditions shall also be considered.

d. The entire Plan area is within a sub-basin of the Bow River watershed. New developments within the Plan area shall follow existing Municipal policies and Provincial requirements for on and off-site storm water management.

10.2 The Shepard Constructed Wetland Project

Figure B-3 depicts the proposed Shepard Constructed Wetland Project. The Shepard Constructed Wetland Project is proposed to act as a major storage area for run-off from the City of Calgary. As the S1 slough and Shepard ditch provides a significant outlet system for runoff in the area for lands both in the City of Calgary and the M.D. of Rocky View, there are plans to increase its capacity and add a storm water quality control function.

These plans include the enlargement and isolation of the west portion of the S1 slough through dyking for storm water detention and wetlands treatment. Runoff from the City of Calgary, north of 114 Avenue would be directed to the S1 slough through a diversion channel within the TUC. The diversion works include an under-drain under the Western Headworks Canal and a diversion structure to divert excess water from the canal itself. In general, undeveloped lands within the

Plan area east of 84th Street and north of 114th Avenue continue to naturally drain into the S2 and S3 sloughs and then into the Shepard ditch via a bypass pipe, with some amount of natural release into the Western Headworks Canal.

Undeveloped land in the Plan area east of 84th Street and south of 114th Avenue will continue to drain naturally into the north eastern portion of the S1 slough or be drained via a bypass pipe into the Shepard ditch. Storm water release rates in the Plan area will be closely monitored. The result will be improved water quality at the discharge point to the Bow River and reduced flood damages at Chestermere Lake. As part of these works, the Shepard ditch outlet to the Bow River would be deepened and re-aligned near the outfall point.

The design concept for the Shepard Constructed Wetland Project is that future developments within the Plan area and south of the Western Headworks Canal will be restricting the 1:100 year outflow rate to 0.8 litres per second per hectare (l/s/ha), and future developments that discharge directly into the Shepard ditch will be restricting the 1:100 year outflow rate to 2.5 l/s/ha (refer to **Appendix E** for details). The reason for the difference is that the Shepard Slough Complex can be used for wetland creation that helps to reduce the outflow rate.

The alterations to the S1 slough component may have benefits for wildlife habitat and passive recreation. The remainder of the Shepard Slough Complex (S2 to S5) will also be considered for conservation and enhancement in the same way in the long term.

The Shepard Constructed Wetland Project is contained within a much larger regional sub-basin. The sub-basin is part of the watershed for the Bow River Basin. The Shepard Constructed Wetland Project will allow the development of the most westerly portion of the sub-basin in the City of Calgary but does not include portions of the basin that are in the M.D. of Rocky View. **Appendix E** delineates the impact on storm water drainage into the sub-basin (i.e. - direction of flow, release rates, impact on the sub-basin) should the Shepard Constructed Wetland Project proceed. **Appendix F** includes potential regional trail connections, perspective and section views of the Shepard Constructed Wetland Project.

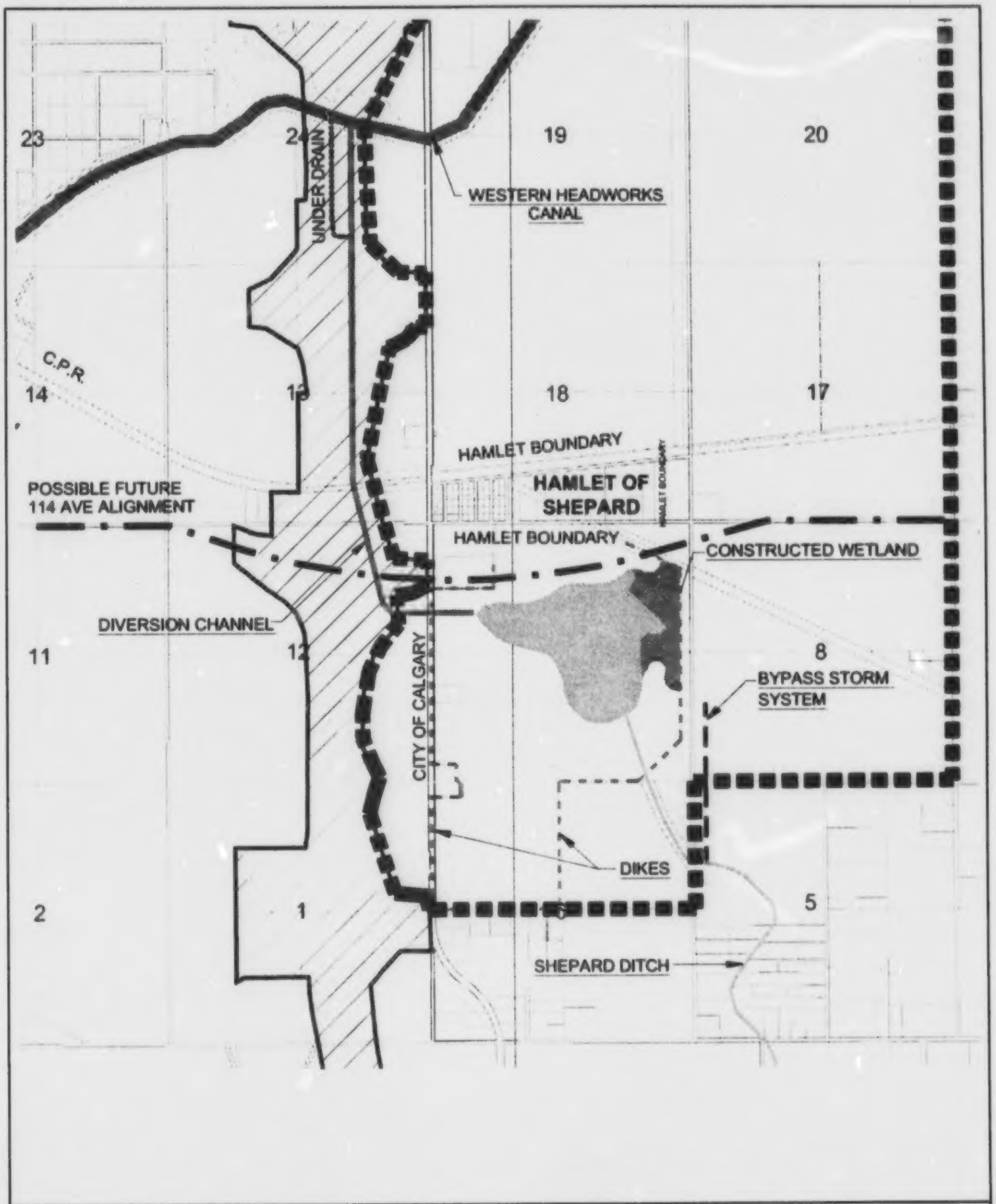
The M.D. of Rocky View MDP and M.D. of Rocky View / City of Calgary IDP both contain policies in support of the Shepard Constructed Wetland Project.

a. A Regional Sub-basin Drainage Study should be commissioned that assesses storm water runoff changes in relation to the proposed land use strategy for the Shepard ASP. This study should include storm water storage facility locations, recommended outlet locations and sizes. Centralized facilities encompassing several developments should be encouraged to minimize future maintenance costs. The City of Calgary/M.D. of Rocky View will jointly determine how the cost for the study will be allocated, and if and when it is undertaken. However, it is recommended that the City of Calgary and M.D. of Rocky View commission the study and recover the cost on a pro-rated basis from future development. It is critical that the study encompass the entire sub basin and not just one development.

b. For any developable lands around the perimeter of the Shepard Constructed Wetlands Project, a natural vegetated buffer should be provided to protect the water quality in the wetland and enhance the wildlife habitat. A minimum setback buffer for development should be 30 metres. However, the value of this buffer is dependent upon the types of wildlife habitat being considered. An additional setback beyond the proposed 30 metres may be required for wildlife habitat and/or recreational use.

c. The proposed Shepard Constructed Wetlands Project shall be designed with respect to the roadway and development plans in the Plan area, including any land residual to the Project to be integrated into Residential Policy Areas #2 or #3.

d. Should the Shepard Constructed Wetland Project proceed, applications for development would be required to prepare on-site storm water management plans in accordance with new release rates and drainage methods afforded by the new infrastructure.



PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44
Twp 23, 24 - Rge 28,29 - W4M

DRAWING TITLE

The Proposed Shepard Constructed Wetlands Project

LEGEND

▨	Pond Areas
▬	Waterway Channels and Canals
- - - -	Proposed Dikes
■■■■■	Proposed Under Drain

Date: December 2000	NTS	Figure No.: **B-3**

11.0 SHALLOW UTILITIES

Electrical service is currently provided to the area by TransAlta Utilities, who have a large substation located on Range Road 285 north of SH #560. In addition, Enmax will provide future service to the area from their substation located east of 100 Street (i.e. Range Road 285) and near 50 Avenue South. In the future, Enmax will provide service to the area from substation 24, proposed to be located at 98 Avenue and 68 Street S.E., and potentially from substation 26, proposed to be east of 52 Street and south of 162 Avenue. Opportunities for power to cross the TUC will coincide with proposed intersections.

Natural gas will be supplied to the site from west of the TUC. There is a regulating station currently at Township Road 232, immediately west of 84th Street. A proposed high-pressure line will run parallel to the TUC on the West Side with the opportunity to extend the line across the TUC into the Plan area. With the feeder mains not yet constructed, there is opportunity to build in the capacities required in the Plan area.

For telephone service, a buried fibre cable exists along 66th Avenue alignment crossing the TUC and 84th Street. There is also a proposed conduit feeder route along SH #560, which will provide continued service for the Plan area as it develops.

An existing cable line runs along Township Road 232, which crosses 84th Street into the Plan area. This will be sufficient for the proposed development in the Plan area.

a. Provision of Shallow Utilities in applications for redesignation, subdivision, and/or development shall be at the sole expense of the developer.

b. Exact alignments of all utility extensions shall be determined at the Conceptual Scheme Stage.

c. Any modifications to the conceptual alignments of utilities will not require amendments to the Plan.

12.0 PROTECTIVE SERVICES

The Municipality requires that proposals for redesignation, subdivision, and/or development accommodate design elements that consider safety measures and appropriate levels of servicing required for fire, police, and ambulance services.

12.1 Police Service

Police service in the Plan area is provided by the Royal Canadian Mounted Police and M.D. of Rocky View Special Constables.

12.2 Fire Service

The Plan area is serviced by 911 emergency service, with an emergency locator system set up for each individual property. Fire protection for the Municipality contracts the Plan area to the City of Calgary Fire Department. Response is from stations in east Calgary.

a. New subdivisions shall meet the criteria for on-site fire fighting measures as determined by the Municipality

b. Applications for redesignation, subdivision or development shall assure proper emergency vehicle access in accordance with Municipal Policy.

c. Business Uses in the Plan area shall be required to submit Emergency Management Plan to the satisfaction of the Municipality.

13.0 INTERMUNICIPAL CO-OPERATION

The Plan area is in the unique position of being contained partly within two municipalities. Consequently, planning for future development within the Plan area is affected by a significant number of inter-municipal issues. The M.D. of Rocky View/ City of Calgary IDP contains an additional subset of policies that need to be referred to for the Shepard ASP.

13.1 Inter-municipal Considerations

The M.D. of Rocky View and the City of Calgary agree to co-operate on matters pertaining to the Shepard ASP including administration and implementation of the Plan and potential future amendments to either Part B or Part C of the Plan.

The resolution of any inter-municipal issues regarding either Part B or Part C of the ASP shall follow the procedures for dispute resolution as outlined in the M.D. of Rocky View/City of Calgary IDP.

13.2 Annexation

The Calgary Plan, as approved by Calgary City Council, contains a policy with respect to land supply for future urban development that recommends that at least a 30-year supply of developable lands for all uses. Having a long-term land supply allows for the comprehensive planning of new areas and encourages choice and competition in the market place. In order to provide for such supply, The City of Calgary occasionally annexes land from the surrounding municipalities, including the M.D. of Rocky View. The M.D. does not annex land from the City.

Recent studies undertaken by the City of Calgary indicate that annexation will be required in the short to medium term future to maintain a 30 year supply of industrial land within the Southeast Sector. The Southeast Industrial Sector in Calgary is defined as the area south of Peigan Trail S.E. and north of 130 Avenue S.E. for lands within the current City limits.

The Southeast Industrial Sector is the largest existing industrial sector within the City of Calgary and the only sector with extensive rail service. It contains the majority of Calgary's warehousing and distribution businesses as well as most of its heavy industry.

The timing and amount of land to be annexed for industrial land use will depend on absorption of existing industrial land. Annual absorption varies with the level of economic development activity in Calgary. There are inefficiencies in the industrial land development process that implies that a greater amount of land should be available than perhaps could be justified by longer-term annual absorption forecasts. These inefficiencies include individual landowner preferences with respect to development timing, industrial owners holding extra site area for future expansion, limitations with respect to the availability of municipal services (e.g. sewer, water, transportation capacity), market preference for a particular industrial sector within the City, etc.

Any annexation application will be based on further technical analysis, extensive public consultation and inter-municipal negotiation.

14.0 IMPLEMENTATION, REVIEW AND AMENDMENT

14.1 Plan Implementation

The Shepard ASP falls within a hierarchy of applicable plans as illustrated in **Part A**. The M.D. of Rocky View Municipal Development Plan (MDP) (Bylaw C-4840-97, adopted July 6, 1998) is the guiding document for all development within the Municipality The Land Use Bylaw (LUB) (Bylaw C-4841-97, adopted September 29, 1998, as amended) establishes the land use rules and regulations. The Shepard ASP presents a greater level of planning detail within the Plan area and is required to be consistent with both the MDP.

14.2 Plan Review and Amendment

As the Shepard ASP is a bylaw of the Municipality, a formal process as outlined in the **Municipal Government Act** is required to amend the Plan.

The future land use and development outlined in the Shepard ASP is intended to address a long-term time horizon. Periodic review and occasional amendment of the Shepard ASP may be required in accordance with the Municipal Government

Act. The Shepard ASP is flexible enough to allow for review and amendment every five years should the Municipality deem that appropriate.

15.0 INTERPRETATION OF TERMS

The interpretation of selected terms, denoted in italics in Part B, are provided below to clarify their meaning in the Plan:

15.1 **Agriculture, Agricultural** - means the use of land, buildings or structures for the raising of animals and/or growing plants for food.

15.2 **Area Structure Plan, ASP** - a statutory plan, adopted by bylaw, which provides a policy framework for the evaluation of proposals for redesignation, subdivision and development of a specified area of land in the Municipality.

15.3 **Archaeological/Historical Impact Assessment** - means an analysis of the potential impacts of development on archaeological and/or historical resources, completed by a qualified professional.

15.4 **Architectural Guidelines** - means guidelines that are registered on the title of land(s) by virtue of a caveat or restrictive covenant and which guide the design and appearance of buildings on the land.

15.5 **Business Uses** - means the use of land, buildings or structures in which the provision of goods and services for manufacture, storage or sale is the primary function and may include auxiliary pursuits.

15.6 **Chemical Management Plan** - means a plan for the management of chemicals that are used on a parcel(s) of land, including, but not limited to, storage, handling, transportation and disposal.

15.7 **Collector Road** - a road in the M.D. of Rocky View which acts as a link between primary and secondary highways and/or other collector roads. A collector road may be either a major or minor roadway depending upon design and traffic volumes.

15.8 **Conceptual Scheme** – means a plan for the subdivision, redesignation and/or development of lands including, but not limited to, generalized land uses at the ¼ section or greater scale, rationale for the developability of the lands and internal road hierarchy. Conceptual Schemes contemplated by this Plan should be prepared in accordance with Municipal policy. Conceptual Schemes contemplated by this Plan shall contain:

i) A description of all lands contained within the Conceptual Scheme Area;

ii) The proposed use of lands within the Conceptual Scheme Area;
iii) Proposed parcel size and density for the Conceptual Scheme Area;
iv) The proposed internal road hierarchy;
v) A servicing proposal including, but not limited to, public and private utilities for the Conceptual Scheme Area;
vi) Any special policies that may be required to give guidance to the preparation of tentative plans of subdivision including, but not limited to, geotechnical, hydrological, Hazard and/or environmental conditions with the Conceptual Scheme Area;
vii) Any other matters deemed appropriate by the Municipality.

15.9 **Construction Management Plan** - means a program of activities that details the site management of all construction activity including, but not limited to the management of construction debris and dust.

15.10 **Council** - the Council of the Municipal District of Rocky View No. 44.

15.11 **Deferred Services Agreement** - means an agreement entered into by a developer/landowner that is registered against the title (by caveat) and obligates the developer/landowner to tie-in to surface/public utility systems when they become available and/or economically feasible.

15.12 **Development** - means:

a) any excavation or stockpile and the creation of either of them, a building or an addition to, or replacement, or repair of a building and construction of placing in, on, over or under land or any of them;
b) a change of use of land or a building or an act done in relations to land or a building that results in or is likely to result in change in the use of the land or building; or,
c) a change in the intensity of use of land or a building or an act done in relation to land or a building that results in or is likely to result in change in the intensity of use of the land or building.

15.13 **Development Plan** - means a proposal for the development of lands over time that may include, but is not limited to: detailed site plan, topographic information, geophysical assessment, hydrological assessment, Traffic Impact Assessment, environmental overview, phasing, community impact assessment, and an archaeological and historical impact assessment.

15.14 **Direct Control District** - a district of the Land Use Bylaw that is subject to regulations established by Council for control over the use and development of a defined area.

15.15 **Emergency Management Plan** - means a plan that outlines a response to emergency situations or disasters.

15.16 **Environmental Impact Assessment** - refers to an area-specific study that may include, but is not limited to:
a. the identification and analysis of natural factors for the study area;
b. an evaluation of the potential impact that a subdivision or a development proposal may have on the factors identified; and
c. a program of avoidance and/or mitigative measures.

15.17 **Geotechnical Report** - means a report prepared by a qualified professional that addresses such issues soil conditions for sewage disposal, slope stability, groundwater issues for development, and other issues that may impact development.

15.18 **Infrastructure** - public and private utility systems in the Municipality that may include, but are not limited to, the transportation network, water and sewage disposal systems, and utilities.

15.19 **Intermunicipal Development Plan (IDP)** - means bylaw C-4929-98, as amended, approved by the Municipality on October 6, 1998.

15.20 **Landscaping Plan** - means a plan that identifies the location, type and extent of all landscaping proposed for the subject land(s).

15.21 **Land Use Bylaw** - a bylaw of the Municipality passed by Council pursuant to the provisions of the Municipal Government Act and intended to control, and/or regulate the use and development of land and buildings within the Municipality.

15.22 **Minimum Separation Distance** - a setback or buffer established between an intensive livestock operation and adjacent land uses intended to minimize potential land use conflict.

15.23 **Municipal Government Act, MGA** - refers to the Municipal Government Act, Statutes of Alberta 1994, Chapter M-26.1 as amended.

15.24 **Municipal Development Plan (MDP)** - is the principal statutory land use plan for the entire Municipality, adopted by Council, in accordance with the provisions of the Municipal Government Act.

15.25 **Municipality, Municipal** - means the Municipal District of Rocky View No. 44 and, when the context requires, means the area contained within the boundaries of the Municipality.

15.26 **Operational Plan** - an outline of the operating practices proposed for a commercial proposal including, but not limited to hours and days of operation and the methods proposed for site management.

15.27 **Phase 1 Environmental Site Assessment** – means a report, written by a qualified environmental consultant, which identifies actual or potential soil and groundwater contamination. This report is to follow the guidelines, practices and procedures, which are included by not limited to those in the Canadian Standards Association (1993) "Phase 1 environmental Site Assessment – Z768-94".

15.28 **Phasing Sequence** - means a sequence whereby land is subdivided, redesignated and/or developed in a sequential order. Phase 1 lands would be developed prior to phase 2 lands, etc.

15.29 **Plan, Plan Area**- refers to the Shepard Area Structure Plan as adopted by Council and amended from time to time.

15.30 **Qualified Professional** – means a person with specialized knowledge recognized by the Municipality and/or licensed to practice in the Province of Alberta. Examples of qualified professionals include, but are not limited to, engineers, geologists and surveyors.

15.31 **Recreation Master Plan** - means a non-statutory plan prepared by a Recreation Board intended to provide for recreation needs within a portion of the Municipality.

15.32 **Redesignation** - refers to the reclassification by the Municipality of a land use designation in the Land Use Bylaw applicable to a specific area of the Municipality.

15.33 **Regional Sub-basin Drainage Study** - means a study prepared by a qualified professional that encompasses the entire drainage sub basin or catchment area of the Bow River that contains the Plan area and which details the patterns of flow and predicted changes of water runoff due to existing and proposed land uses. The study will include, but not be limited to, water storage facility locations, recommended outlet locations and sizes.

15.34 **Residential Land Use** - means a primarily residential land use in which auxiliary pursuits may be allowed dependent on the parcel size and/or proximity to other residences.

15.35 **Shepard Constructed Wetland Project** - means a regional storm water project with three major components: a diversion channel within the Transportation and Utility Corridor; a constructed wetland near 84 street/84th Street; and an upgraded outlet ditch to the Bow River. The project will convert a portion of the Shepard S1 slough into a constructed wetland. The topography of the existing slough will be modified to promote water circulation and enhance water quality.

15.36 **Shepard Slough Complex** - means the series of sloughs that run from south of Chestermere Lake to south of the Hamlet of Shepard, as shown in **Appendix E** of this Plan.

15.37 **Slough** - means a seasonal or intermittent prairie pothole marsh.

15.38 **Storm Water Management Plan** - means a plan prepared by a qualified professional to address on-site and off-site storm water. It will demonstrate that post-development storm water flows will equal pre-development storm water flows, include the use of Best Management Practices, address water quality and the method of on-site containment during a 1:100 year storm event.

15.39 **Traffic Impact Assessment** - an area-specific transportation study completed by a qualified professional that may include, but is not limited to, an analysis and evaluation of:

a. The potential impact of a proposed subdivision and/or development on the existing transportation network; and,

b. A program of future expansion and/or improvement of the transportation network to accommodate the proposed growth and to preserve the function and integrity of the network.

15.40 **Waste Management Plan** - means a plan that identifies how waste will be collected, stored, transported and disposed of.

15.41 **Western Headworks Canal** - means the canal that transports water from the Bow River to the irrigation water storage facility known as Chestermere Lake, owned and operated by the Province.

PART C THE CITY OF CALGARY LAND USE STRATEGY

(Adopted By the City of Calgary as an Area Structure Plan June 18,2001, Bylaw 7P2001)

PART C - CITY OF CALGARY LAND USE STRATEGY

1.0 LAND USE STRATEGY - GENERAL

1.1 Land Use Policies

a. Applications for redesignation, subdivision and/or development in the Plan Area, shall conform to the land use policies herein contained for those lands illustrated on **Figure C-1.** In addition, the South East Industrial Area Structure Plan should be consulted for compatibility with land uses west of the Transportation and Utilities Corridor (TUC).

b. Applications for redesignation, subdivision, and/or development that may be contrary to the Shepard ASP's sequencing objectives may occur in the Special Development Areas without amendment to the Plan, provided long and short term consequences such as impact on adjacent lands, carrying capacity, servicing, etc. are examined to the satisfaction of The City of Calgary.

c. Applications for redesignation, subdivision, and/or development should be accompanied by a *Storm Water Management Plan* until such time as the *Shepard Constructed Wetland Project* is developed or a *Regional Sub-basin Drainage Study* has been completed.

d. Applicants shall be required to enter into Deferred Services Agreements when requested by The City of Calgary.

2.0 THE SPECIAL DEVELOPMENT AREAS (SDA'S)

The Special Development Areas (SDA's 1 to 6) consist of lands located within the City of Calgary and between the Transportation and Utility Corridor (TUC) and 84 Street S.E. (84th Street). These lands are considered to be "Special Development Areas" due to their isolated location within the City of Calgary's context, current pressure for development, the close proximity to the Hamlet of Shepard, existing limited service industrial development and the limited availability of piped water and sanitary sewer service for the foreseeable future. It is anticipated that direct access onto 84 Street will change with the long-term development of the TUC.

2.1 General Special Development Area Policies

a. Land use redesignation/development of the SDA's shall be co-ordinated with the Municipal District of Rocky View's portion of this Plan (Shepard Area Structure Plan - Part B and the Shepard Business Park Area Structure Plan).

b. Higher quality limited service industrial and commercial development is recommended for SDA 2 to ensure compatibility with the Hamlet of Shepard.

c. In the long term, general light industrial development on full municipal services should be anticipated for Special Development Areas 3 to 6. Limited serviced development which may occur in the short to medium term should provide for the eventual long term transition to general light industrial development.

d. All development should consider appropriate site and building orientation with respect to the future East Freeway and incorporate a landscaped setback of up to 50 metres from the East Freeway at the discretion of the approval authority.

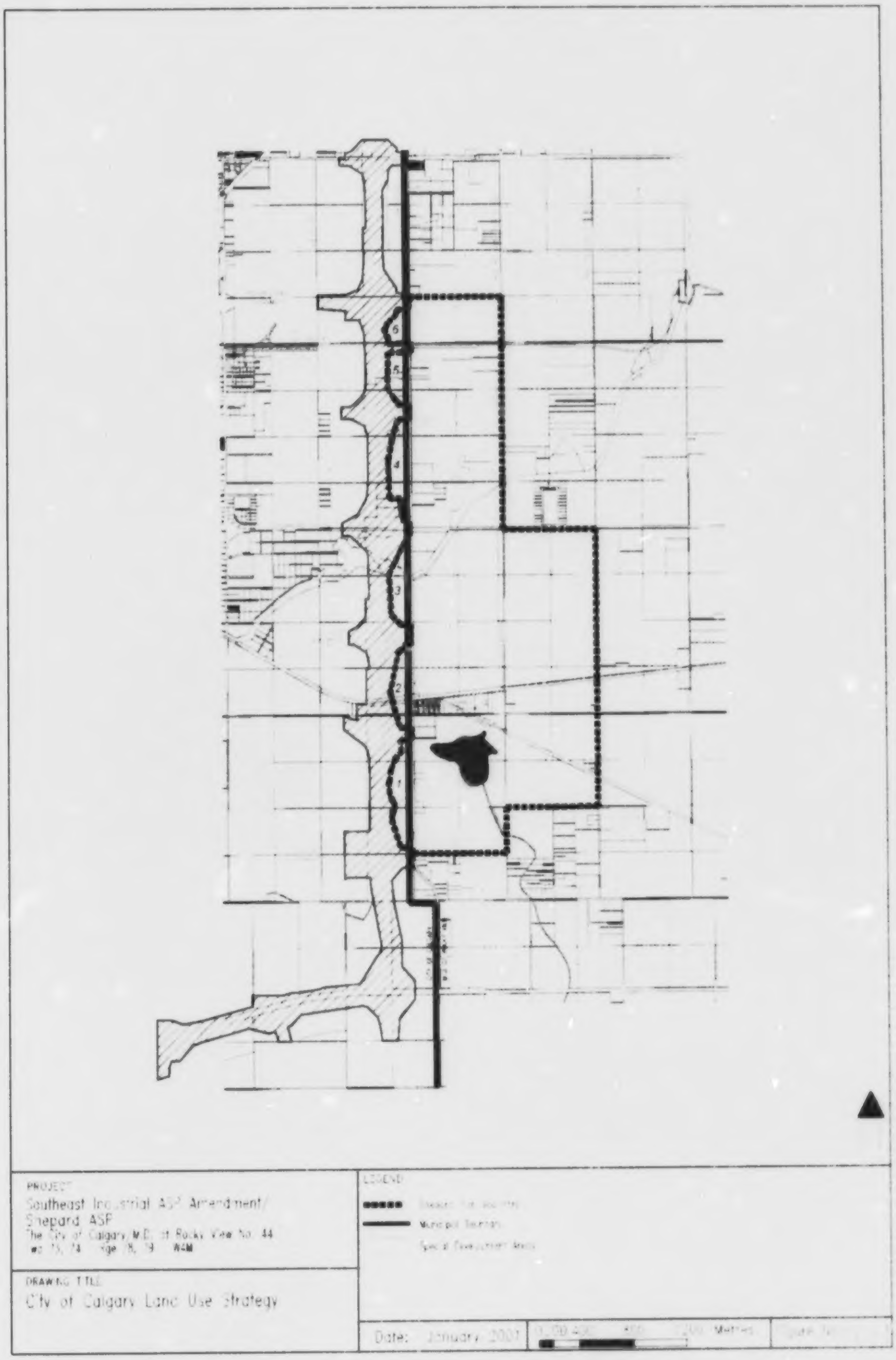
2.2 Special Development Area Number One (SDA 1)

SDA 1 is located west of the proposed *Shepard Constructed Wetlands Project* site. SDA 1 is the largest of the six SDA's and is presently entirely agricultural in use. SDA 1 is unique due to its potential for transition to urban uses (when piped water and sanitary sewer services are available) to compliment the Hamlet of Shepard, the *Shepard Constructed Wetlands Project* and existing and future Residential areas south of the Hamlet of Shepard.

a. The current land use in SDA 1 is agricultural under the Urban Reserve District of the City of Calgary Land Use Bylaw 2P80. SDA 1 should be considered to be under Policy Review until the following conditions have been met:

1. The Shepard Constructed Wetlands Project is constructed;
2. Piped water and sanitary sewer services are available; and
3. Odour Issues surrounding the Shepard Sludge Lagoons have been resolved.

An area structure plan amendment will be required prior to any future urban development occurring. Possible future land uses include residential, recreational, commercial, or institutional uses that would be compatible with the Shepard Constructed Wetlands, the Hamlet of Shepard and adjacent residential areas within the M.D. of Rocky View. Industrial land uses should not be considered.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PROJECT
Southeast Industrial ASP Amendment/
Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23, 24 Rge 28, 29 W4M
DRAWING TITLE
City of Calgary Land Use Strategy
LEGEND
Municipal Boundary
Special Development Areas
Date: January 2001
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2.3 Special Development Area Number Two (SDA 2)

SDA 2 is located directly west and northwest of the Hamlet of Shepard. The Shepard ASP (Part B) has recommended infill and expansion of the Hamlet of Shepard. SDA 2 is located directly adjacent to a later phase of the Shepard Business Park Area Structure Plan, intended for limited service industrial development within the M.D. of Rocky View's jurisdiction. Special consideration will be required for the development of lands within SDA 2 to minimise the impact of such development on Hamlet residents. Only limited services will be available for the foreseeable future. Eventual transition to general light industrial uses is not anticipated.

a. Limited serviced industrial and recreational uses (e.g. golf courses, driving ranges) having a minimal impact on adjacent residential uses within the Hamlet could be considered. Such uses as open storage, auto wrecking yards, scrap metal yards are specifically discouraged.

b. Local commercial uses that compliment the Hamlet of Shepard could be considered south of the CPR railway track.

c. Low intensity institutional uses in close proximity to the Hamlet could be considered subject to the policies outlined in Section 3.0.

d. Low traffic generating land uses should be considered for lands south of the CPR railway track and directly opposite existing and future residential uses in the Hamlet.

e. Site development shall be compatible with the overall standard of development for general light industrial areas with regard to landscaping, building orientation, building design and screening of storage for all development within SDA 2. Special emphasis should be given to the interfaces with the future East Freeway and the residential uses in the Hamlet of Shepard.

f. Applicants for land use redesignation, subdivision and/or development in SDA 2 shall submit *Operational Plans* to The City of Calgary and the M.D. of Rocky View which detail hours of operation and methods of mitigating potential conflict with residential uses in the area.

g. A minimum parcel size of 4 acres should be considered for future subdivision of lands within SDA 2.

2.4 Special Development Areas Number Three (SDA 3), Number Four (SDA 4), Number Five (SDA 5), and Number Six (SDA 6)

> SDA 3 is bisected by the Western Headworks (WH) Canal. A higher quality of development is expected in SDA 3 because of the close proximity to the WH Canal, the Shepard Business Park, Glenmore Trail/SH #560 and 84 Street which serves as an entranceway to the Hamlet of Shepard.
>
> SDA's 4, 5 and 6 are all located north of Glenmore Trail/SH #560 and are generally transport-oriented uses (i.e. trucking, intermodal transport, goods storage and transfer). The majority of SDA 4 is designated Direct Control (DC) to accommodate the existing Canfer Rolling Mills Plant. SDA 5 contains a mix of existing residential and limited serviced industrial uses currently designated Urban Reserve.

a. Site development in SDA's 3 to 6 shall be compatible with the overall standard of development for general light industrial areas with regard to landscaping, building design and screening of storage.

b. All development along the WH Canal shall provide a building setback of 15 metres (50 feet) from the Canal right-of-way. 7.5 metres (25 Feet) of the setback area closest to the Canal must be landscaped by landowners/developers (e.g. planting and/or berming) to the satisfaction of the City of Calgary.

c. Development adjacent to the WH Canal shall include provisions to ensure that storm water run-off to the Canal is controlled as overland storm water run-off from future developments to the Canal is not allowed by Alberta Environment.

d. Phasing of development in SDA's 4, 5 and 6 should be consistent with the phasing for development of lands on the east side of 84th Street as described in the M.D. of Rocky View portion (Part B) of the **Shepard Area Structure Plan**.

e. The ratio of building site coverage to parcel size should be consistent with the limited serviced industrial areas.

f. Transport oriented uses (i.e. trucking, intermodal transport, goods storage and transfer) could be considered in SDA's 4, 5 and 6.

g. Subdivision below a 20 acre minimum parcel size is strongly discouraged in SDA's 3 to 6 until such time as piped sanitary sewer and water services are available.

3.0 INSTITUTIONAL LAND USE

a. Institutional land uses include schools and churches, and both should be integrated with the landscape and be compatible with surrounding land uses.

b. Applications for redesignation, subdivision, and/or development of institutional uses should meet the criteria for Institutional Land Uses contained within **The M.D. of Rocky View / The City of Calgary Intermunicipal Development Plan.**

c. The applicant may be required to provide an *Operational Plan* outlining the days and hours of operation and anticipated functions throughout the year, including discussion of the facility's benefits in terms of being a potential amenity to the community.

4.0 ENVIRONMENTAL AND OPEN SPACE POLICIES

There are many environmental considerations in the Plan Area that are important ecologically, economically, or aesthetically. These include:

- The Shepard *slough* complex, which is a series of seasonal water bodies in and around the Plan area that provide waterfowl habitat and natural storm water retention.
- Numerous seasonal ponds providing waterfowl habitats and storm water retention.
- Short-eared owl and burrowing owl habitat areas.

The Shepard Area contains the majority of the regional sub-basin wetlands. The City of Calgary and the Municipal District of Rocky View will work together to protect locally-significant natural habitats in the Plan area. The City will undertake an inventory and assessment of the wetlands in both the City and M.D. parts of the Plan area in co-operation with the M.D. **Appendix D** contains additional detailed information regarding environmental considerations in the Plan area.

4.1 General Environmental Policy

a. The City of Calgary will take steps to preserve significant and/or sensitive natural environments through the creative design of storm water systems and other means.

Significant and sensitive habitats should not automatically be candidates for stormwater management. This is one tool for maintaining water levels in an existing wetland, but it must be done carefully and would require at a minimum a *biophysical impact assessment*. Wetlands with Environmental Reserve status normally will not be used to accept stormwater. Protection of natural areas is best achieved through a properly planned open space system.

b. The City of Calgary may require that an applicant, in support of a proposal for redesignation, subdivision and/or development, prepare and submit to the satisfaction of the City of Calgary:

   i. A Geotechnical Evaluation report pursuant to the provisions of the **Calgary Land Use Bylaw 2P80**; or

   ii. An *Historical Resources Impact Assessment* be prepared for applications within the Plan area that may have been identified by provincial departments (i.e. Alberta Culture) with historical and/or archaeological features.

   iii. A biophysical inventory and biophysical impact assessment of affected environmentally sensitive areas where The City has identified the area as having significant biophysical features.

   iv. A potential site contamination acknowledgement and disclosure statement.

   v. A Phase 1 Environmental Site Assessment and, if required, Phase 2 and Phase 3 Environmental Site Assessments.

4.2 Topography

Topography in the Plan area is a significant consideration in development applications due to the low lying and flat nature of the area. The minimal topography results in areas of standing water and poor drainage.

a. Applications for redesignation, subdivision, and /or development in areas where low-lying topography is a development constraint should provide an engineering report that:

   i. Outlines mitigation measures to prevent soil erosion;
   ii. Identifies low-lying areas and contains recommendations on how to accommodate development while not interfering with natural storm water flow;
   iii. Demonstrates the retention of storm water on-site, with post-development storm water flows equalling pre-development storm water flows; and
   iv. Identifies the protection of natural drainage courses.

4.3 Open Space, Recreation and Public Land

Public Land consists largely of Municipal Reserve (MR) or Environmental Reserve (ER) that has been dedicated to the City of Calgary upon subdivision. There is an opportunity to provide regional linear park connections with the City of Calgary pathway system and the WID Canal Pathway to the *Shepard Constructed Wetland Project*.

4.3.1 Municipal and Environmental Reserve

a. Dedication of MR, either by cash-in-lieu or by physical dedication of land or a combination of both, in the Plan area shall be determined by the City of Calgary in accordance with current policies and Section 666 of the *Municipal Government Act*. MR will be taken as land in industrial subdivisions only if it is sufficiently large for sports fields (i.e. a minimum of ± 2 ha).

b. Municipal Reserve (MR) should be considered where the potential MR parcels could be used for the development of sports fields, the provision of a buffer around a wetland and/or ER, or as part of a regional linear park system.

c. Dedication of ER in the Plan area shall be determined by the City of Calgary in accordance with appropriate policies and Section 664 of the *Municipal Government Act*. The area's wetlands and natural drainage courses are the natural features that may qualify as ER. These will be assessed at the time of subdivision to determine their level of significance.

4.4 Trails – Regional and Local

Local residents have expressed desire for extended linear parkways and green spaces in this area. For clarity, "pathways" are paved multi-use facilities. "Trails" are soft-surfaced facilities geared for walking and generally located in natural areas.

a. The City of Calgary will encourage the development of regional recreational pathways linking the Hamlet of Shepard to the *Shepard Constructed Wetland Project* and to the WH Canal system.

b. The width and dedication of land for a continuous linear park system through the Plan area shall be at the discretion of the City of Calgary as a condition of subdivision.

5.0 INFRASTRUCTURE

5.1 General Infrastructure

The policies provided in this Plan will allow for the determination of standards appropriate for the development and ultimate provision of services as the development proceeds. It is recognized that the study area falls within two municipal jurisdictions and that each jurisdiction has different standards and policies with respect to the provision of infrastructure.

5.2 General Road System Policy

The roads in the Plan area are classified as follows:

Road	*Calgary Transportation Plan (City of Calgary)*	*Intermunicipal Development Plan (MD of Rocky View)*
Glenmore Trail/SH 560	Expressway	Key Link-Dangerous Goods
Peigan Trail	Expressway	not constructed
114th Avenue/Twp. Rd 232	Major Road	Key Link - Truck Route
61st Avenue	Major Road	not constructed
106th Avenue	Major Road	not constructed
130th Avenue	Major Road	not constructed
50th Avenue/Twp. Rd. 240	Rural Road	Key Link - Truck Route
84th Street	Rural Road	Boundary Road

In order to provide for efficient development and reasonable access the two municipalities will co-ordinate the planning and transportation links in the Plan Area.

The East Freeway will be a major regional freeway that transverses the study area and will be constructed by the Province of Alberta. Construction of this portion of the TUC is not scheduled until the end of the 20-year horizon.

Appendix D contains a diagram of a 30-year+ conceptual transportation network promoting linkages between the municipalities. It is one picture of a possible future transportation scenario considering the ultimate build out of the TUC. Actual build-out and appearance will be based on funding and need.

a. No direct access to the East Freeway will be permitted, except at the approved interchanges.

Four major traffic-generating areas have been identified within the study area, and prior to any development occurring within these areas, a *Traffic Impact Assessment* (TIA) must be completed by a registered professional engineer on behalf of the applicant. The traffic generating areas include lands both within The City of Calgary and the M.D. of Rocky View.

b. **Figure C-2** delineates the areas where *Traffic Impact Assessments* (TIAs) shall be required:

Area 1 - North of Glenmore Trail/SH #560.
Area 2 - South of Glenmore Trail/SH #560 and north of the Hamlet.
Area 3 - The Hamlet of Shepard and potential expansion area.
Area 4- South of the 114th Avenue/Twp. Rd. 232 Realignment, including Highway 22X influences.

c. All TIAs in each of the four identified areas must consider the following:

i. Traffic volumes, existing and projected at development build out, including projected vehicle types and commodities being transported;
ii. Turning movements from the area to the major collector roads including the East Freeway;
iii. Origin/Destination projections, internal and external to the area;
iv. Improvements required to existing roadways and intersectional upgrades required to provide acceptable level of service for build out, including signalization, turning lanes, acceleration and deceleration lanes;
v. Cumulative impacts on identified collectors, considering existing and proposed development;
vi. Linkages to adjacent areas beyond the study area;
vii. Access implications such as restrictions, closures and alternative access construction;
viii Phasing Plan for the implementation of the improvements and the timing for the development; and
ix. A review of roadway classifications (i.e. access to expressways vs. access to a Major Road).

At the time of any redesignation, subdivision and/or development application, a T.I.A. must be conducted in accordance with the accepted practices of The City and approved by the Transportation Development Services Section.

5.3 Railway Policy

The Plan area contains a CP Rail Line south east of the Hamlet of Shepard and a CN Rail Line at 50th Avenue/Twp. Rd.240. In addition, an abandoned right of way is located north of 114th Avenue/Twp. Rd.232. A large CP intermodal rail yard lies just west of the Plan area. The public consultation program identified a number of rail-related concerns including: 1) Whistles and noise, 2) Lack of communication between the Hamlet and railways regarding changes to the system, and 3) Longer trains that block roadways. To mitigate some problems, crossing arms were installed at the 114th Avenue/Twp. Rd.232 and the 84th Street crossings. To solve noise problems, the railway, Transport Canada, The City of Calgary and the M.D. of Rocky View need to negotiate anti-whistling bylaws. Regarding road blockage, Federal Regulations require a train to remain stopped at a crossing for no longer than five minutes when vehicular or pedestrian traffic requires passage.

a. The City of Calgary and the M.D. of Rocky View will monitor the need for controlled crossings on the CP Rail line at 116th Street/Range Road 284, 84th Street, 50th Avenue/Twp. Road 240 and 114th Avenue/Twp. Road 232. At the same time, The City of Calgary and the M.D. of Rocky View will pursue whistle cessation in the Hamlet of Shepard area.

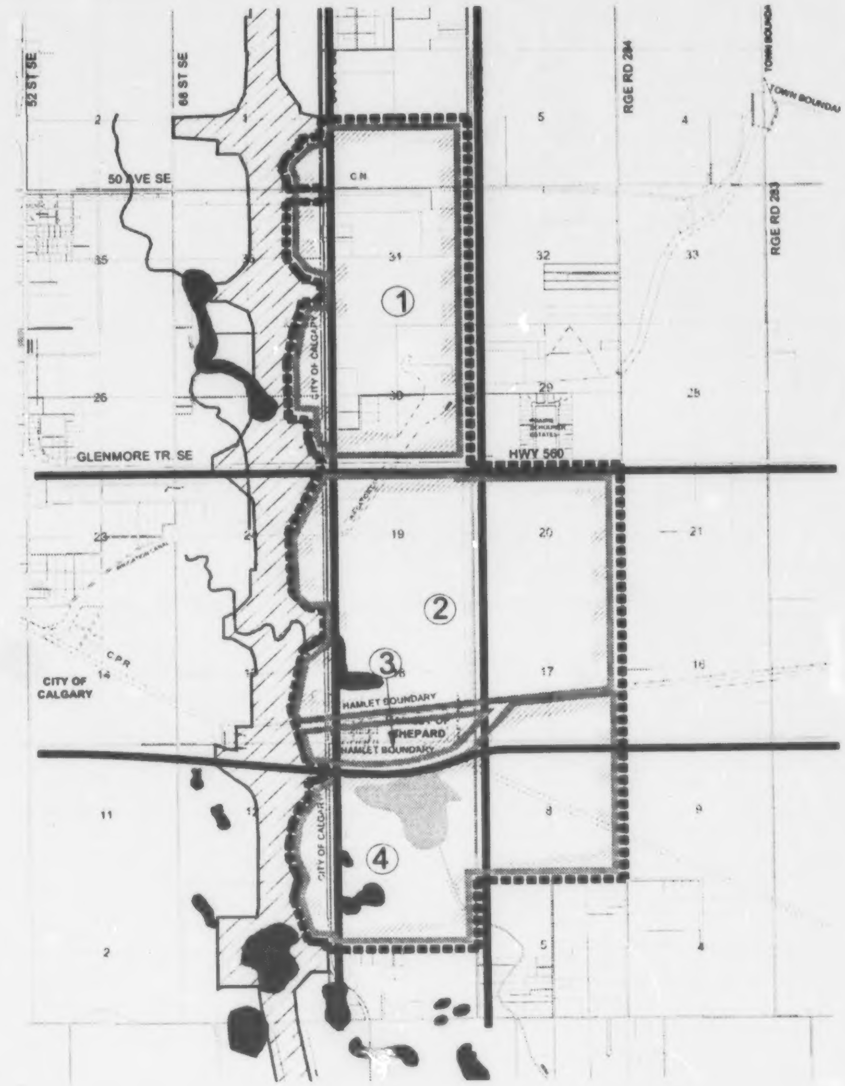
b. Upon receiving notification by CP Rail of any prolonged interruption of road access, the City of Calgary will notify the M.D. of Rocky View, the Rocky View School District, and the President of the Shepard Community Association.

c. CN, CP, Transport Canada, The City of Calgary, and The Municipality of Rocky View are encouraged to continue an ongoing dialogue concerning development in the Shepard area.

   i. The Applicant/Owner of land adjacent to Railway property shall install and maintain at his own expense, a chain link fence of minimum 1.83 metre height along the mutual property line.

   ii. Any proposed alterations to the existing drainage pattern affecting Railway property must receive prior concurrence from the Railway and be substantiated by a drainage report to the satisfaction of the Railway.

   iii. Appropriate mitigation measures for proposed development adjacent to either railway could include berming and/or setbacks to the satisfaction of the approval authority in consultation with the Railways.



PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44

Twp 23, 24 - Rge 28, 29 - W4M

DRAWING TITLE

Areas Requiring a Traffic Impact Analysis

LEGEND

▬ Major Connector Roads

④ Traffic Impact Study Areas

Date: December 2000

0 200 400 800 metres

Figure No. C-2

6.0 WATER AND SEWER SERVICING

Water, sanitary and storm services are key issues for all development, Potable water in particular is an issue in the Plan area. There have been concerns raised about the high water table, flooding, poor quality well water and the ability to provide fire protection for future industrial developments. To maintain water quality in the aquifer(s), consideration must be given to proper disposal of sanitary and sewer waste from future developments. Existing and proposed locations of water and sanitary sewer lines are delineated on **Figure C-3**.

6.1 Water Service

The City's piped water system will not be available to service the City's portion of the Plan area for the foreseeable future. Approval for interim development of these lands requires a *Deferred Services Agreement* with the City that obligates the landowner to connect to piped services when they become available.

a. Until such time as piped water service is available, low intensity limited service industrial and commercial development may utilise individual water wells, communal water wells or cisterns (trucked in water supply) subject to the approval of the City of Calgary.

6.2 Sanitary Sewer Service

The City's piped sanitary sewer system will not be available to service the City's portion of the Plan area for the foreseeable future. Significant costs would be incurred in order to service the Plan area with sanitary trunk lines.

a. Holding tanks may be permitted as an alternative method of providing sanitary sewer service depending on the type and intensity of development proposed and subject to the approval of the City of Calgary.

b. Septic fields are not allowed within the City of Calgary.

7.0 STORM WATER

At present, the Shepard Area Structure Plan area drains into two specific outlets. Lands north of the Western Head Works Canal drain directly into the canal and flow easterly to Chestermere Lake. These lands are predominantly agricultural due to a moratorium on new development restricting the flow of storm water into the Western Head Works canal since the 1970's. Lands south of the canal drain to the Shepard Slough Complex and specifically to the S1 Slough.

The proposed *Shepard Constructed Wetland Project* is an attempt to solve the storm water moratorium for lands both within the City of Calgary and within the M.D. of Rocky View and will improve storm water drainage in the Hamlet of Shepard. The *Shepard Constructed Wetland Project* would utilise the S1 *slough* in the existing Shepard *slough* complex. The purpose of the constructed wetland would be to retain run-off, improve the water quality and control peak discharge rates. Modifications to the drainage pattern and the S1 *Slough* itself will be required to facilitate this new drainage Plan.

7.1 General Storm Water Policy

a. Until such time as a regional storm water system is developed, applications for redesignation, subdivision and/or development in the Plan area shall also include the submission of a master drainage Plan. The Plan should identify the methods of storm water collection, storage and disbursement, assessment of run off changes due to the proposed land use both on-site and off-site, and the impact of the development on the regional storm water system.

b. Prior to the implementation of the *Shepard Constructed Wetland Project*, the storm water moratorium will continue to apply within the City of Calgary.

c. In the absence of a *regional sub-basin drainage study* for this area, a maximum release rate of 0.8 litres per second per developed hectare has been set by Alberta Environment and the City of Calgary up to the 1:100 year storm event (refer to **Appendix F** for details). In addition, all outfall locations are to have wet pond storage to improve water quality from developed areas prior to entering the outlet channel.

7.2 The Shepard Constructed Wetland Project

Figure C-4 depicts the proposed *Shepard Constructed Wetland Project*. The *Shepard Constructed Wetland Project* is proposed to act as a major storage area for local runoff. As the S1 *slough* and Shepard Ditch provide a significant outlet system for runoff in the area for lands both in The City of Calgary and the M.D. of Rocky View, there are plans to increase its capacity and add a storm water quality control function. These plans include the enlargement and isolation of the west portion of the S1 *slough* through dyking for storm water detention and wetlands treatment. Run-off from the City of Calgary, north of 114 Avenue S. would be directed to the S1 *slough* through a diversion channel within the TUC. The diversion works include an under-drain under the Western Headworks Canal and a diversion structure to divert excess water from the canal itself. In general, undeveloped lands within the Plan area east of 84th Street and north of 114th Avenue continue to naturally drain into the S2 and S3 *sloughs* and then into the Shepard Ditch via a bypass pipe, with some amount of natural release into the

Western Head Works Canal. Undeveloped land in the Plan area east of 84th Street and south of 114th Avenue will continue to drain naturally into the north eastern portion of the S1 *slough* or be drained via a bypass pipe into the Shepard Ditch. Storm water release rates in the Plan area will be closely monitored. The result will be improved water quality at the discharge point to the Bow River and reduced flood damages at Chestermere Lake. As part of these works, the Shepard Ditch outlet to the Bow River would be deepened and re-aligned near the outfall point.

The design concept for the Constructed Wetland Project is that future developments within the Shepard ASP and south of the Western Head Works Canal will be restricting the 1:100 year outflow rate to 0.8 litres per second per hectare (l/s/ha), and future developments that discharge directly into the Shepard Ditch will be restricting the 1:100 year outflow rate to 2.5 l/s/ha (refer to Appendix F for details). The reason for the difference is that the Shepard *Slough* Complex can be utilized for wetland creation which helps reduce the outflow rate.

The alterations to the S1 *slough* component will have benefits for wildlife habitat and passive recreation. The Shepard *Slough* Complex has been designated as being an environmentally significant area and provides some of the only wildlife habitat in the area. The rest of the *Slough* Complex (S2 to S5) will also be considered for conservation and enhancement in the same way in the long term.

The *Shepard Constructed Wetland Project* is contained within a much larger regional sub-basin. The sub-basin is part of the watershed for the Bow River Basin and requires that storm water quality be considered within a broad context. The *Shepard Constructed Wetland Project* will have a positive impact on the most westerly portion of the sub-basin but does not specifically address the easterly and northerly portions. Additional study is required on the regional sub-basin with additional consideration on the impact of drainage in the area on the Shepard *Slough* Complex and Shepard Ditch (refer to Appendix F). **Appendix F** delineates the impact on storm water drainage into the sub-basin (i.e. - direction of flow, release rates, impact on the sub-basin) should the Constructed Wetland Project proceed. **Appendix G** includes potential regional trail connections, perspective and section views of the *Shepard Constructed Wetland Project*.

The M.D. of Rocky View Municipal Development Plan and the M.D. of Rocky View / City of Calgary Intermunicipal Development Plan both contain polices in support of the *Shepard Constructed Wetland Project*.

a. A *regional sub-basin drainage study* should be commissioned which assesses run-off changes due to the proposed land use strategy for the Shepard Area Structure Plan and *Shepard Constructed Wetland Project*. This study should include storage facilities locations, recommended outlet locations, and sizes. Centralized facilities encompassing several developments should be encouraged to minimize future maintenance costs. The City of Calgary/Municipal District of Rocky View will determine the party responsible for paying for this study. However, it is recommended that the City of Calgary and M.D. of Rocky View commission this study and charge back the cost of the study to future development. It is critical that the study encompasses the entire area and not just one development. Considerations of this study will include future development in and around the Hamlet and any changes in drainage patterns as well as how the existing and abandoned rail lines and roads may be influencing drainage, and how current blockages of natural drainage can be reversed.

b. Applications for subdivision or development of lands contained within the City of Calgary east of the TUC and west of 84th Street SE shall be required to prepare detailed master drainage plans which outline the impact on-site storm water detention and release may have on the *Shepard Constructed Wetland Project* and the ultimate construction of the TUC.

8.0 SHALLOW UTILITIES

Lands within the six Sodas are within the ENMAX service area. TransAlta Utilities supply power to ENMAX from their substation located east of 100 Street and near 50 Avenue South. In the future, ENMAX will provide service to the area from Substation 24, proposed to be located at 98 Avenue and 68 Street SE, and potentially from Substation 26, proposed to be east of 52 Street and south of 162 Avenue. Opportunities to cross the TUC will coincide with proposed intersections. Three-phase power will be very important for the future industrial development proposed in the Plan area.

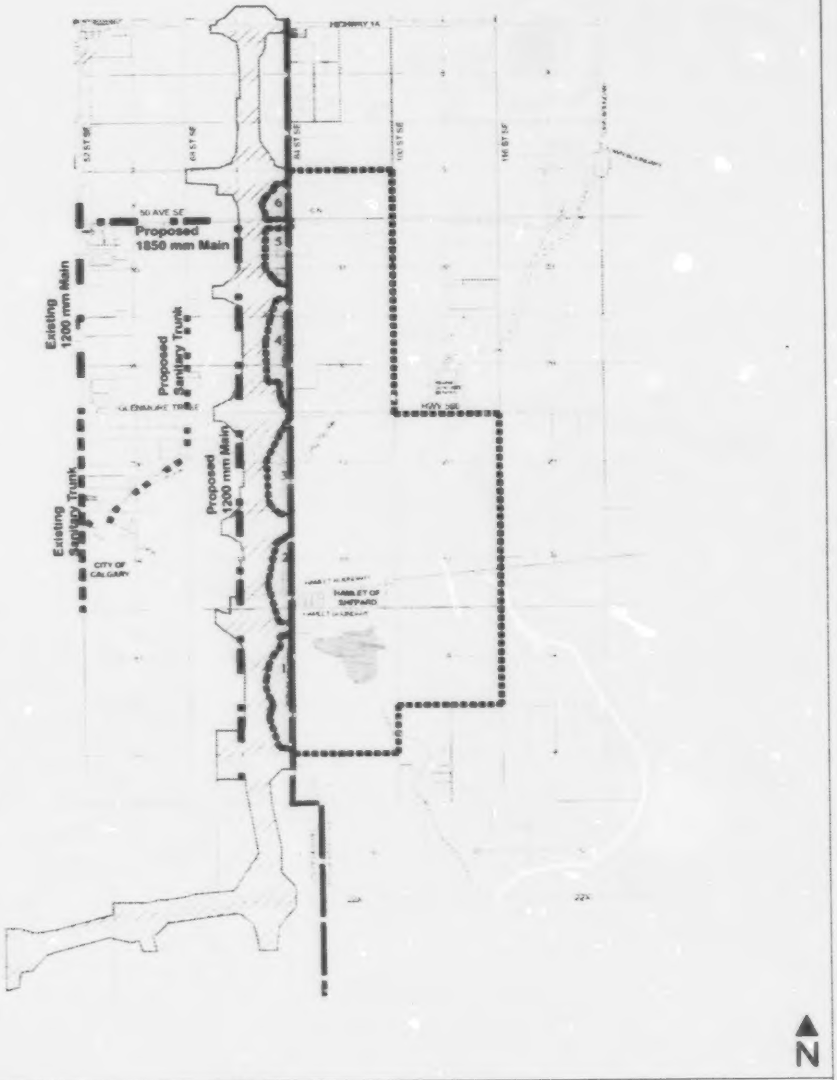
Natural gas will be supplied to the area from west of the TUC. There is a regulating station currently at 114th Avenue, immediately west of 84th Street. A proposed high-pressure line will parallel the TUC on the West Side with the opportunity to extend the line across the TUC into the study area. With the feeder mains not yet constructed, there is the opportunity to build in the capacities required in the Plan area.

For telecommunications, there currently exists a buried fibre cable along the 66th Avenue alignment crossing the TUC and 84th Street. There is also a proposed conduit feeder route along Glenmore Trail. This will provide continued service for the study area as it develops. There is currently an existing cable line that runs along 114th Avenue, crossing 84th Street into the study area.

8.1 General Shallow Utilities Policy

a. Provision of Shallow Utilities in applications for redesignation, subdivision, and/or development shall be at the sole expense of the developer.

b. Exact alignments of all utility extensions shall be determined at the outline/conceptual plan stage.



PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44

Twp 23, 24 - Rge 28, 29 - W4M

DRAWING TITLE

City of Calgary
Existing and Proposed Water and Sanitary Trunk Lines

LEGEND

- Shepard ASP Study Area Boundary
- Municipal Boundary
- Special Development Areas
- Proposed Water Supply Main
- Existing Water Supply Main
- Existing Sanitary Trunk Line
- Proposed Sanitary Trunk Line

Date: December 2000

0 200 400 800 1200 Metres

Figure No. C-3

9.0 PROTECTIVE SERVICES

9.1 General Protective Services Policy

a. The City of Calgary requires that proposals for redesignation, subdivision, and/or development should accommodate design elements that consider safety measures and appropriate levels of servicing required for fire, police, and ambulance services.

9.2 Police Service

a. Police Service is provided to most of the Plan area from the Police District #6 office, located at 8325 Bonaventure Dr. S.E.

9.3 Fire Service

The Plan areas serviced by 911 emergency service, with an emergency locator system set up for each individual property. The Plan areas served by the City of Calgary Fire Station #9, located at 2515 - 78 Avenue SE and Fire Station #25, located at 4705 - 76 Avenue S.E.

a. New developments shall meet the criteria for on-site fire fighting measures as determined by the City of Calgary and the Fire Prevention Bureau. In areas with limited servicing, minimum parcel size may be quite large, structures on the site may be limited to a very small percentage of the site area, and only very specific low fire risk uses may be permitted.

b. Applications for redesignation, subdivision and/or development shall assure proper emergency vehicle access in accordance with City of Calgary Policy.

c. Business uses in the Plan area shall be required to submit emergency response plans to the satisfaction of the City of Calgary.

10.0 INTERMUNICIPAL CO-OPERATION

The Plan areas in the unique position of being contained partly within two municipalities. Consequently, planning for future development within the Plan areas affected by a significant number of Intermunicipal issues. The *Municipal District of Rocky View/City of Calgary Intermunicipal Development Plan* contains an additional subset of policies which need to be referred to for the Shepard Area Structure Plan Area.

10.1 Intermunicipal Considerations

The M.D. of Rocky View and The City of Calgary agree to co-operate on matters of pertaining to the Shepard Area Structure Plan including administration and implementation of the Plan and potential future amendments to either **Part B or Part C** of the Plan.

The resolution of any intermunicipal issues regarding either **Part B or Part C** of the Area Structure Plan shall follow the procedures for dispute resolution as outlined in the M.D. of Rocky View/City of Calgary Intermunicipal Development Plan.

10.2 Annexation

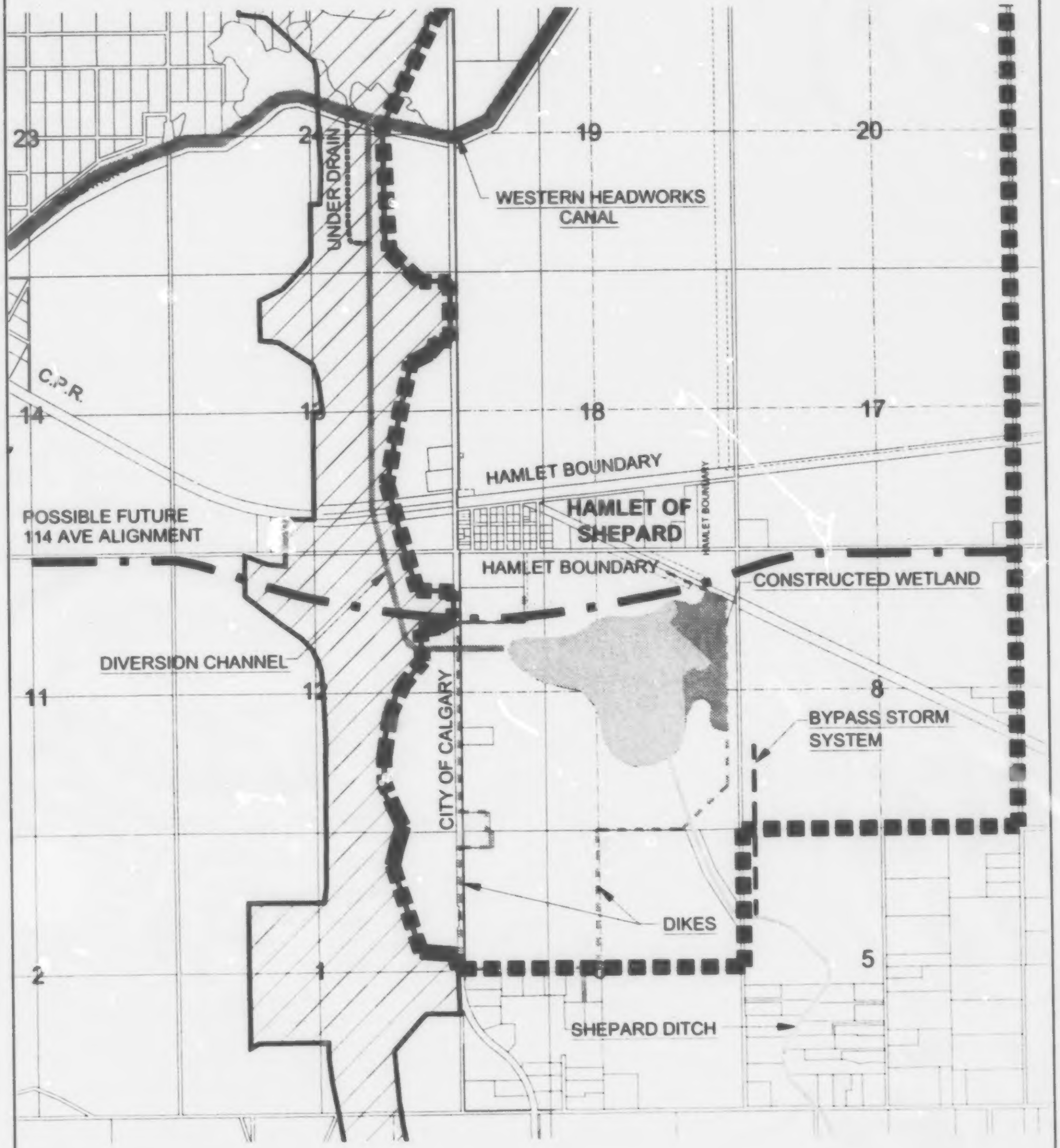
The Calgary Plan, as approved by Calgary City Council, contains a policy with respect to land supply for future urban development which recommends that at least a 30 year supply of developable lands for all uses. Having a long-term land supply allows for the comprehensive planning of new areas and encourages choice and competition in the market place. In order to provide for such supply, the City of Calgary occasionally annexes land from the surrounding municipalities, including the M.D. of Rocky View.

Recent studies undertaken by the City of Calgary indicate that annexation will be required in the short to medium term future to maintain a 30 year supply of industrial land within the Southeast Sector. The Southeast Industrial Sector in Calgary is defined as the area south of Peigan Trail S.E. and north of 130 Avenue S.E. for lands within the current City limits.

The Southeast Industrial Sector is the largest existing industrial sector within the City of Calgary and the only sector with extensive rail service. It contains the majority of Calgary's warehousing and distribution businesses as well as most of the heavy industries.

The timing and amount of land to be annexed for future land uses will depend on absorption of existing land within the area. Annual absorption varies with the level of economic development activity in Calgary. There are inefficiencies in the industrial land development process which implies that a greater amount of land should be available than perhaps could be justified by longer-term annual absorption forecasts. These inefficiencies include individual landowner preferences with respect to development timing, industrial owners holding extra site are for future expansion, limitations with respect to the availability of municipal services (e.g. sewer, water, transportation capacity), market preference for a particular industrial sector within the City, etc.

Any annexation application will be based on further technical analysis, extensive public consultation and intermunicipal negotiation.



PROJECT **Southeast Industrial ASP Amendment/ Shepard ASP** **The City of Calgary/M.D. of Rocky View No. 44** Twp 23, 24 - Rge 28,29 - W4M	LEGEND ■ Pond Areas ▬ Waterway Channels and Canals - - - Proposed Dikes ▪▪▪▪▪ Proposed Under Drain
DRAWING TITLE **The Proposed Shepard Constructed Wetlands Project**	Date: November 1999 · NTS · Figure No **C-4**

11.0 IMPLEMENTATION, REVIEW AND AMENDMENT

11.1 Plan Implementation

The Shepard ASP falls within a hierarchy of applicable plans as illustrated in **Part A**. ***The Calgary Plan*** (MDP) (Bylaw 10P98, adopted July 20, 1998) is the guiding document for all development within the municipality. The ***Land Use Bylaw*** (LUB) (Bylaw P280, as amended) establishes the land use rules and regulations. The Shepard ASP presents a greater level of planning detail within the specific Plan area and is required to be consistent with the **MDP**.

11.2 Plan Review and Amendment

As the Shepard ASP is a bylaw of the Municipality, a formal process as outlined in the Municipal Government Act is required to amend the Plan.

a. The future land use and development outlined in the Shepard ASP is intended to address a long-term time horizon. In accordance with the provisions of the **Municipal Government Act**, The City of Calgary may amend, repeal or vary the Plan as determined by Council.

12.0 INTERPRETATION OF TERMS

The interpretation of selected terms herein is provided to clarify their use in the Plan:

12.1 **Area Structure Plan** - A statutory plan, adopted by Bylaw, that provides a policy framework for the evaluation of proposals for redesignation, subdivision and development of a specified area of land in the Municipality.

12.2 **Berm** - A constructed embankment used for separating potentially incompatible areas, sites and districts or for protecting an area, site or district from any intrusions generated by other activities, operations, facilities or traffic.

12.3 **Deferred Services Agreement** - an agreement entered into by a developer/landowner which is registered against the title (by caveat) and obligates the developer/landowner to tie-in to surface/public utility systems when they become available and/or economically feasible.

12.4 **Development Plan** - A proposal for the development of lands over time that may include, but is not limited to: detailed site plan, topographic information, geophysical assessment, hydrological assessment, traffic impact assessment, environmental overview, phasing, community impact assessment, and an archaeological and historical impact assessment.

12.5 **Historical Impact Assessment** - An analysis of the potential impacts of development on archaeological and/or historical resources.

12.6 **Infrastructure** - Public and private utility systems in the Municipality that may include, but are not limited to, the transportation network, water and sewage disposal systems, and utilities.

12.7 **Municipal Government Act** - Refers to the *Municipal Government Act, Statutes of Alberta 1994, Chapter M-26.1* as amended from time to time.

12.8 **Municipal Development Plan** - The City of Calgary "*Calgary Plan*" is the principal statutory land use plan for the entire City, adopted by Council, in accordance with the provisions of the *Municipal Government Act*.

12.9 **Operational Plan** –an outline of the operating practices proposed for a commercial proposal including, but not limited to hours and days of operation, and the methods proposed for site management.

12.10 **Phase 1 Environmental Site Assessment** – a report, written by a qualified environmental consultant, which identifies actual or potential soil and groundwater contamination. The report is to follow the guidelines; practices and procedures, which are included but not limited to those in the Canadian Standards Association (1993) "Phase 1 Environmental Site Assessment – Z768-94".

12.11 **Phase 2 Environmental Site Assessment** – a report, written by a qualified environmental consultant, which details the existence, type and extent of on and off-site contamination.

12.12 **Phase 3 Environmental Site Assessment** – a report, written by a qualified environmental consultant, which outlines the remediation/risk management to be implemented on a contaminated site. Phase 3 also includes the actual remediation and risk management.

12.13 **Regional Sub-basin Drainage Study** – means a study prepared by a qualified professional that encompasses the entire drainage sub-basin or catchment area of the Bow River that contains the Plan area and which details the patterns of flow and predicted changes of water runoff due to existing and proposed land uses. The study will include, but not be limited to, water storage facility locations, recommended outlet locations and sizes.

12.14 **Shepard Constructed Wetland Project** – A regional stormwater drainage project. The project has three major components: a diversion channel within the Transportation and Utility Corridor; a constructed wetland near 84th Street; and an upgraded outlet ditch to the Bow River. The project will convert a portion of the S1 *slough* into a constructed wetland. The topography of the existing slough will be modified to promote water circulation and to enhance the water quality.

12.15 **Slough** – means a seasonal or ephemeral swamp or land that is waterlogged due to high groundwater table conditions and overland drainage due to snowmelt or rainfall.

12.16 **Storm Water Management Plan** - A plan prepared to adequately address on-site storm water retention, demonstrate that post-development flows equal pre-development flows, and the method of on-site containment during a 1:100 year storm event.

12.17 **Traffic Impact Assessment** - An area-specific study that may include, but is not limited to, an analysis and evaluation of:

a. the potential impact of a proposed subdivision and/or development on the existing transportation network; and

b. a program of future expansion and/or improvement of the transportation network to accommodate the proposed growth and to preserve the function and integrity of the network.

APPENDIX A OPPORTUNITIES AND CONSTRAINTS

SHEPARD AREA STRUCTURE PLAN
ISSUES IDENTIFIED AT OPEN HOUSE

1. TRANSPORTATION

- **ROADS**
  - **Access**
  - **Width**
    - Road widening
  - **Flooding**
  - **Streetlights**
  - **Disrepair**
    - Potholes
    - Split ditches
  - **Intersections**
    - Control
    - Trucks
    - Road Bans
    - Increased Traffic
    - Slow Zones
    - Speeding
- **TRANSPORTATION AND UTILITY CORRIDOR**
  - **Access**
  - **Surplus Parcel Disposition**
  - **Road Hierarchy**
- **CALGARY TRANSIT AVAILABILITY**
- **RAILWAY**
  - **Crossing Arms**
  - **Noise**
    - Whistles
    - Horns

2. ASP PROCESS

- **BYLAW ENFORCEMENT**
- **CONSULTANT'S ROLE**
- **KNOWLEDGE BEFORE GOING TO COUNCIL**
- **EFFECT ON ZONING**
- **PERCEPTION OF BUREAUCRACY**
- **STAKEHOLDER CONSULTATION**

3. INFRASTRUCTURE

- **CONSTRUCTED WETLAND PROJECT**
  - **WID Canal**
  - **Pathway linkages**
    - WID Pathway
  - **Water Table Impact**
  - **Water Flow**
  - **Passive Reaction**
    - Walking
    - Bird Watching
  - **Amenity**
  - **Geese/mosquitoes**
  - **Shepard ditches**
- **DRAINING & ROADS**
  - **Road bed erosion**
  - **Culverts**
    - Clogged
    - Location
    - Too small
- **DRAINING & FLOODING**
  - **Ditch Grading**
  - **Health concerns**
    - Standing water
    - Mosquitoes
    - Smell
  - **Flood Protection**
    - Who is responsible?
  - **Flooding**
    - Roads
    - Monetary Loss
    - Crops
    - Basements
  - **High moisture**
  - **High water table**
    - Bad Taste
    - Polluted
    - Useless
    - Need water testing
  - **Sewage**
    - Pumping out
    - Back-up
    - Aquifer contamination
    - Trapped in ditches

SHEPARD AREA STRUCTURE PLAN
ISSUES IDENTIFIED AT OPEN HOUSE

4. LAND USE

- **INSTITUTIONAL**
  - **Appropriate**
- **COMMERCIAL**
  - **In Hamlet?**
  - **Appropriate**
- **MUNICIPAL RESERVE / ENVIRONMENTAL RESERVE**
  - **Community facilities**
  - **Buffering**
  - **Pathway linkages**
- **OPEN SPACE & RECREATION**
  - **Park**
    - Recreation
- **RESIDENTIAL**
  - **Urban**
  - **Country**
- **HAMLET**
  - **Lot sizes**
  - **History**
  - **Residential growth**
  - **Sense of place/small feel**
  - **Infrastructure servicing**
  - **Home occupation**
  - **Conflicting land uses**
- **Industrial**
  - **Adjacent to Hamlet**
  - **Appearance**
    - Hours of operation
    - Buffering
    - Lighting
  - **Access**
  - **Coordinated growth**
- **Agricultural**
  - **Impact of growth**

5. INTERMUNICIPAL

- **REGIONAL ROADS**
- **ANNEXATION**
- **ACQUISITION**
- **REGIONAL UTILITIES**
- **PROXIMITY TO CALGARY**
- **COORDINATION OF USES**
- **JOINT SERVICING**
  - **Revenue sharing**

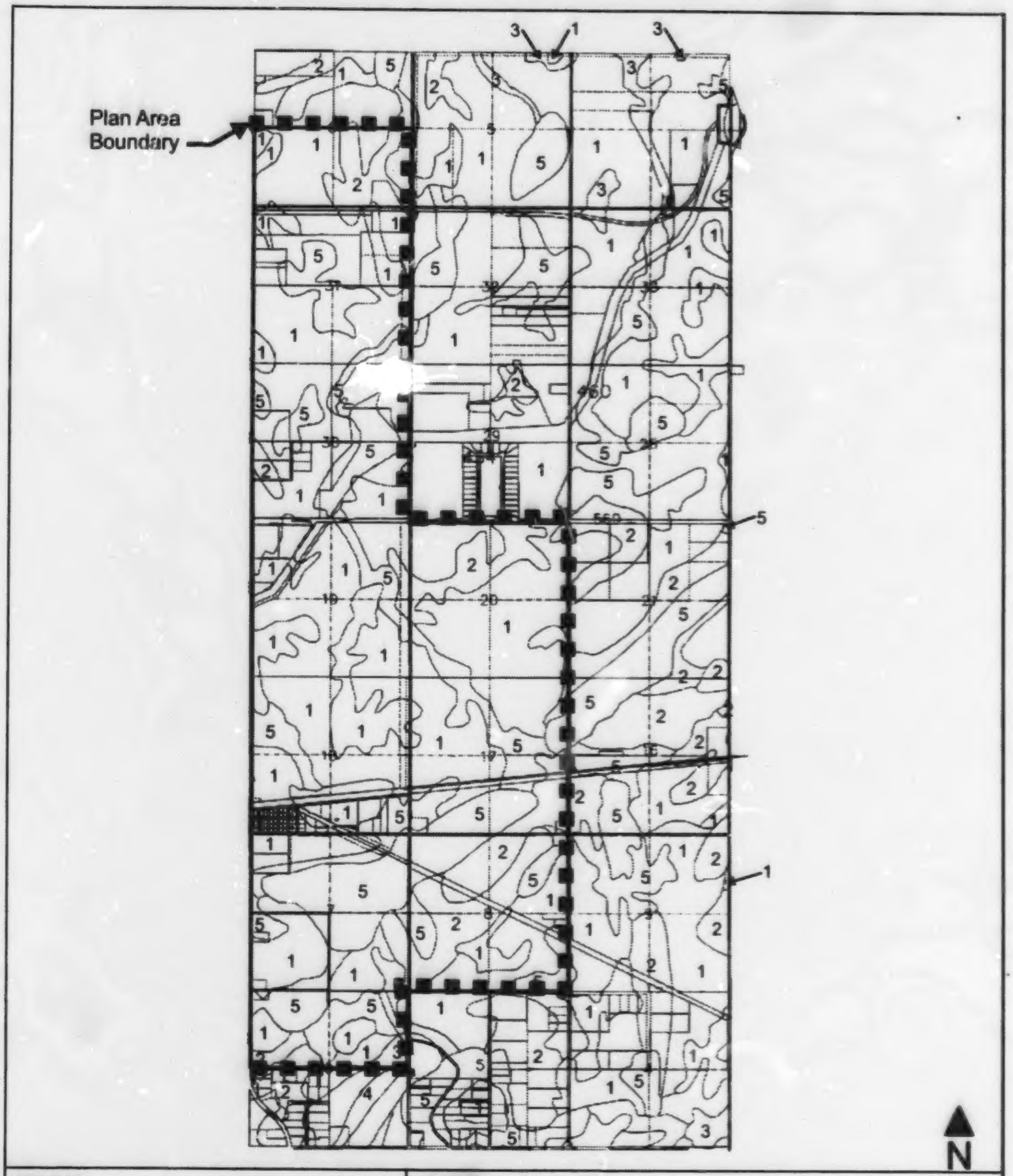
6. ENVIRONMENT

- **HABITAT AREAS**
- **IMPACT OF GROWTH**
- **REGIONAL PATHWAY**
- **WILDLIFE NEEDS**
- **WATER DRAINAGE EFFECT OF INDUSTRY**

7. OTHER

- **SCHOOL BUS**
- **TRESPASSING**
- **PLAYGROUND/SPORTS EQUIPMENT**
- **POPULATION**
- **COMMUNITY HALL**
- **GARBAGE**
- **BUG CONTROL**
- **PET CONTROL**
- **WEEDS**

APPENDIX B SOIL CLASSIFICATIONS



PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44

Twp 23 - Rge 28, 29 - W4M

DRAWING TITLE

Soil Classifications

LEGEND

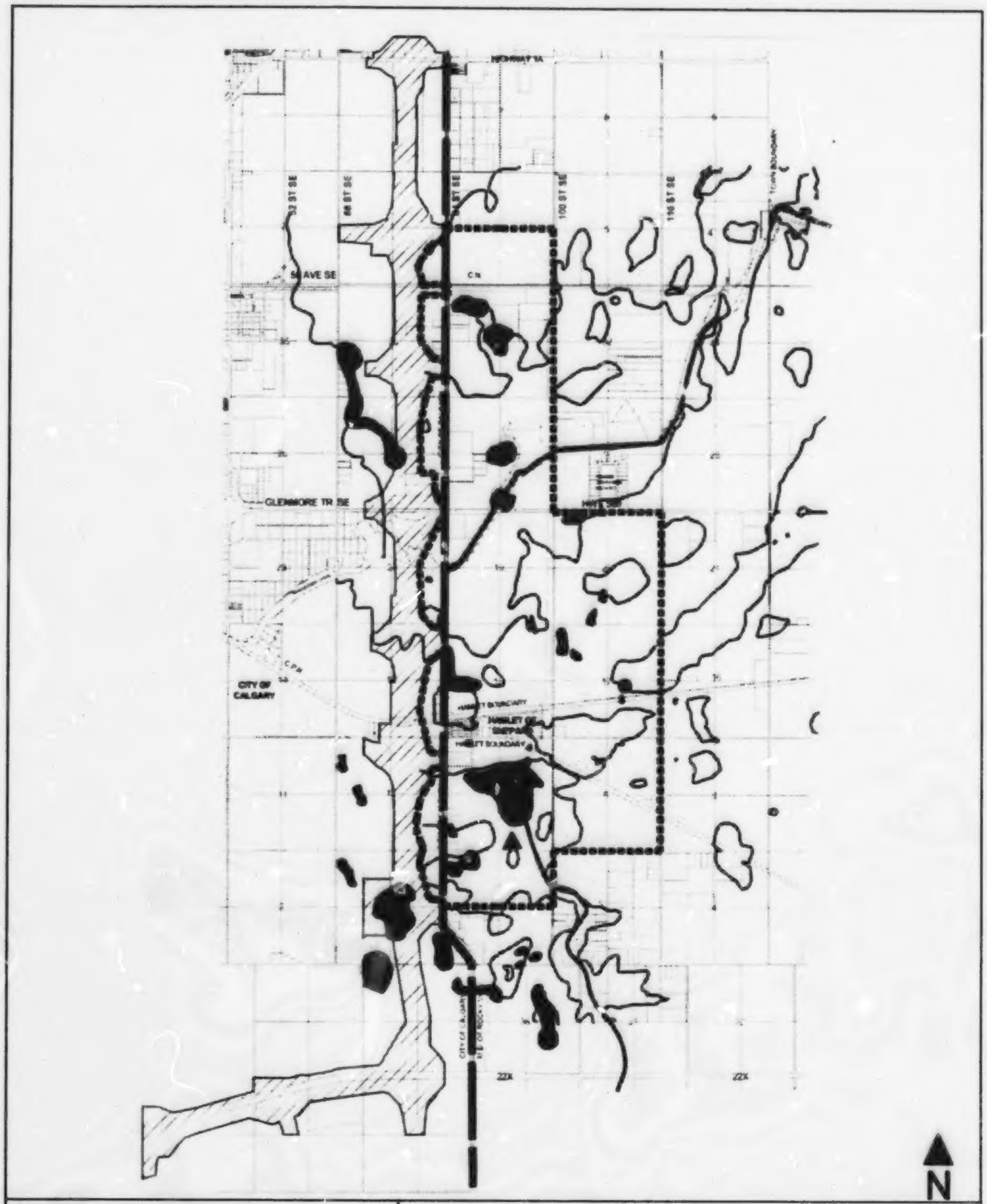
*Note: Numbers 1-5 represent the general Canada Land Inventory Soil Classifications.

Date: December 2000

0 200 400 800 1200m

Appendix B

APPENDIX C ENVIRONMENTAL CONSIDERATIONS



PROJECT

Southeast Industrial ASP Amendment/
Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23 - Rge 28, 29 - W4M

DRAWING TITLE

Environmental Considerations

LEGEND

▬ ▬ Southeast Industrial ASP Amendment/ Shepard ASP Boundary
— - Municipal Boundary
● Short Eared Owl Habitat
▲ Burrowing Owl Habitat
Contour Lines (10 metre interval)
● Natural Wetland Areas

Date: December 2000

0 200 400 800 1200 Metres

Appendix C

APPENDIX D 30+ YEAR CONCEPTUAL TRANSPORTATION NETWORK

Traffic Impact Analysis Area 1 - Policies

a. In addition to the general policies in **Section 8.2**, the Traffic Impact Assessment for Area 1 must specifically consider:

i. Projection of traffic (including commodity) volumes and movements in and out of the area via a main access road and on the surrounding network, specifically Township Road 240, SH #560 and Highway 1A, west into the City and west beyond Range Road 284, and 84th Street and Range Road 285, north and south;

ii. Determination of access improvement requirements for the roadway at the proposed point of entry including signage, acceleration/deceleration lanes or service road requirements particularly on SH #560 or 84th Street. Existing future accesses along 84th Street should also be reviewed; and,

iii. Determination of intersection improvement requirements at any impacted intersection, specifically the TUC and north boundary of the study area, the railway crossing at Township Road 240 and on 84th Street, and the proposed TUC interchange between SH #560 and Township Road 240. Depending on projection of traffic movements and origin/destination scenarios, intersections at Highway 1A, Range Road 285 and Range Road 284 should also be reviewed.

Traffic Impact Analysis Area 2 - Policies

a. In addition to the general policies in **Section 8.2**, the Traffic Impact Assessment for Area 2 must specifically consider:

i. Projection of traffic (including commodity) volumes and movements in and out of the area via a main access and on the surrounding network, specifically SH #560 and Township Road 232, east into the City and west beyond Range Road 284, 84th Street, Range Road 285 and Range Road 284;

ii. Determination of access improvement requirements for the roadway at the proposed point of entry including signage, acceleration/deceleration lanes, or service road requirements particularly on SH #560 and 84th Street. Existing and future accesses along 84th Street should also be reviewed;

iii. Determination of intersection improvement requirements at any impacted intersection, specifically along the TUC interchanges at SH #560, at the midpoint along 84th Street, and at Township Road 232;

iv. Roadway improvements are to be in accordance with the appropriate and applicable standards; and

v. Traffic in and around the current and proposed development for the Hamlet of Shepard should also be taken into account. Consideration of this residential area should be made with respect to hours of operation, site access and traffic flow.

Traffic Impact Analysis Area 3 - Policies

a. In addition to the general policies in **Section 8.2**, the Traffic Impact Assessment for Area 3 must specifically consider:

   i. Projection of traffic (including commodities) volumes and movements in and out of the area via a main access on an existing roadway, particularly 84th Street and Township Road 232;

   ii. Current and existing access improvements, given the future alignment of Township Road 232;

   iii. Intersection improvements at affected railway crossings, Range Road 285, 84th Street, Township Road 232, and Range Road 284;

   iv. Traffic in and around the current and proposed development for the Hamlet of Shepard should address residential units, open spaces, site access and traffic flow; and,

   v. Roadway standards should address the different level of service required in and around residential areas (versus industrial/commercial areas).

Traffic Impact Analysis Area 4 - Policies

a. In addition to the general policies in **Section 8.2**, the Traffic Impact Assessment for Area 4 must specifically consider:

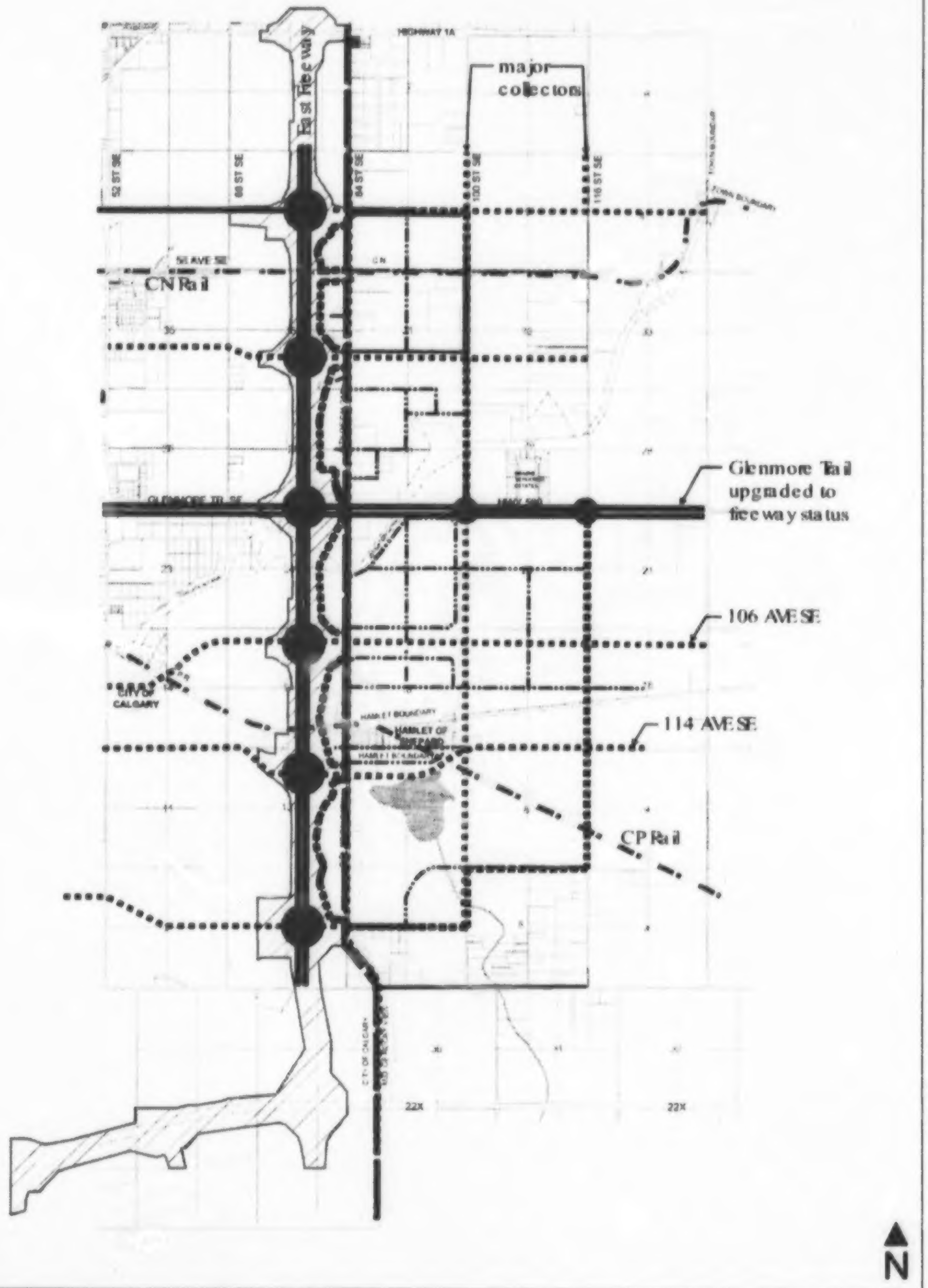
   i. Projection of traffic (including commodity) volumes and movements in and out of the area via a main access and on the surrounding network, specifically Township Road 232 west into the City and east beyond Range Road 284, 84th Street, and Range Road 284. The impacts on the minor road network along the south side of the study area should also be considered;

   ii. Determination of access improvement requirements for the roadway at the proposed point of entry including signage, acceleration/deceleration lanes, or service road requirements particularly along Township Road 232 and 84th Street. Existing future access along 84th Street should also be reviewed;

   iii. Future possible development of the Shepard Constructed Wetlands Project and access conflicts should be reviewed and improved in accordance with applicable standards proposed;

   iv. Impacts on 84th Street and onto Highway 22X are to be considered; and,

   v. Determination of intersection improvement requirement for connector roadways along Township Road 232 and the proposed TUC interchanges are to be considered.



PROJECT

Southeast Industrial ASP Amendment/
Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23 - Rge 28, 29 - W4M

DRAWING TITLE

30 Year Conceptual Transportation Network

LEGEND

- ▬ ▬ ▬ Shepard ASP Boundary
- — — Municipal Boundary
- ▬▬ Freeway / Expressway
- ● ● ● ● ● Major
- —··—· Collector
- —● Rail
- ● Provision for Interchange

Date: November 1999

0 200 400 800 1200 Metres

Appendix D

Traffic Impact Assessment Area 1 - Policies

a. In addition to the general policies in **Part C - Section 5.2b**, the *Traffic Impact Assessment* for Area 1 must specifically consider:

   i. Projection of traffic (including commodity) volumes and movements into and out of the area via a main access and on the surrounding network, specifically 50th Avenue/Twp. Rd.240, Glenmore Trail/SH #560 and Highway 1A, west into the City and north and south beyond 116th Street, and 84th Street, and 100th Street.

   ii. Determination of access improvement requirements for the roadway at the proposed point of entry including signage, acceleration/deceleration lanes or service road requirements particularly on Glenmore Trail/SH #560 or 84th Street. Existing and future accesses along 84th Street should also be reviewed. It is anticipated that 84th Street may not operate to the same standard upon development of the TUC. It is recommended that 84th Street be designed to a long-term standard. After the TUC is constructed the total traffic volume may decrease, nevertheless, truck traffic will continue to use the road to access adjacent industrial development.

   iii. Determination of intersection improvement requirements at any impacted intersection, specifically the TUC and north boundary of the study area, the railway crossing at 50th Avenue/Twp. Rd.240 and on 84th Street, proposed TUC interchange between Glenmore Trail/SH #560 and 50th Avenue/Twp. Rd.240. Depending on projection of traffic movements and origin/destination scenarios, intersections at Highway 1A, 100th Street/Range Road 285 and 116th Street/Range Road 284 should also be reviewed

Traffic Impact Assessment Area 2 - Policies

a. In addition to the general policies in **Part C - Section 5.2b**, the *Traffic Impact Assessment* for Area 2 must specifically consider:

   i. Projection of traffic (including commodity) volumes and movements into and out of the area via a main access and on the surrounding network, specifically Glenmore Trail/SH #560 and 114th Avenue/Twp. Rd. 232, west into the City and east beyond 116th Street/Range Road 284, 84th Street, 100th Street/Range Road 285 and 116th Street/Range Road 284;

   ii. Determination of access improvement requirements for the roadway at the proposed point of entry including signage, acceleration/deceleration lanes or service road requirements particularly on Glenmore Trail/SH 560 and 84th Street. Existing and future accesses along 84th Street should also be reviewed. It is anticipated that 84th Street may not operate to the same standard upon development of the TUC;

iii. Determination of intersection improvement requirements at any impacted intersection, specifically along the TUC interchanges at Glenmore Trail/SH #560, at the midpoint along 84th Street and at 114th Avenue/Twp. Rd. 232.

iv. Traffic in and around the current and proposed development for the Hamlet of Shepard should also be taken into account. Consideration of this residential area should be made with respect to hours of operation, site access and traffic flow.

Traffic Impact Assessment Area 3 - Policies

a. In addition to the general policies in **Part C - Section 5.2b**, the *Traffic Impact Assessment* for Area 3 must specifically consider:

   i. Projection of traffic volumes (including commodities) and movements into and out of the area via a main access on an existing roadway, particularly 84th Street and 114th Avenue/Twp. Rd.232.

   ii. Current and future access improvements are to be considered given the future alignment of 114th Avenue/Twp. Rd.232.

   iii. Intersection improvements at affected railway crossings, 100th Street/Range Road 285, 84th Street, 114th Avenue/Twp. Rd.232 and 116th Street/Range Road 284.

   iv. Traffic in and around the current and proposed development for the Hamlet of Shepard should also be taken into account. Consideration of this residential area should be made with respect to residential units, open spaces, site access and traffic flow.

Traffic Impact Assessment Area 4 - Policies

a. In addition to the general policies in **Part C - Section 5.2b**, the *Traffic Impact Assessment* for Area 4 must specifically consider:

  i. Projection of traffic (including commodity) volumes and movements into and out of the area via a main access and on the surrounding network, specifically 114th Avenue/Twp. Rd.232 west into the City and east beyond 116th Street/Range Road 284, 84th Street, and 116th Street/Range Road 284. The impacts on the minor road network along the south side of the study area should also be considered;

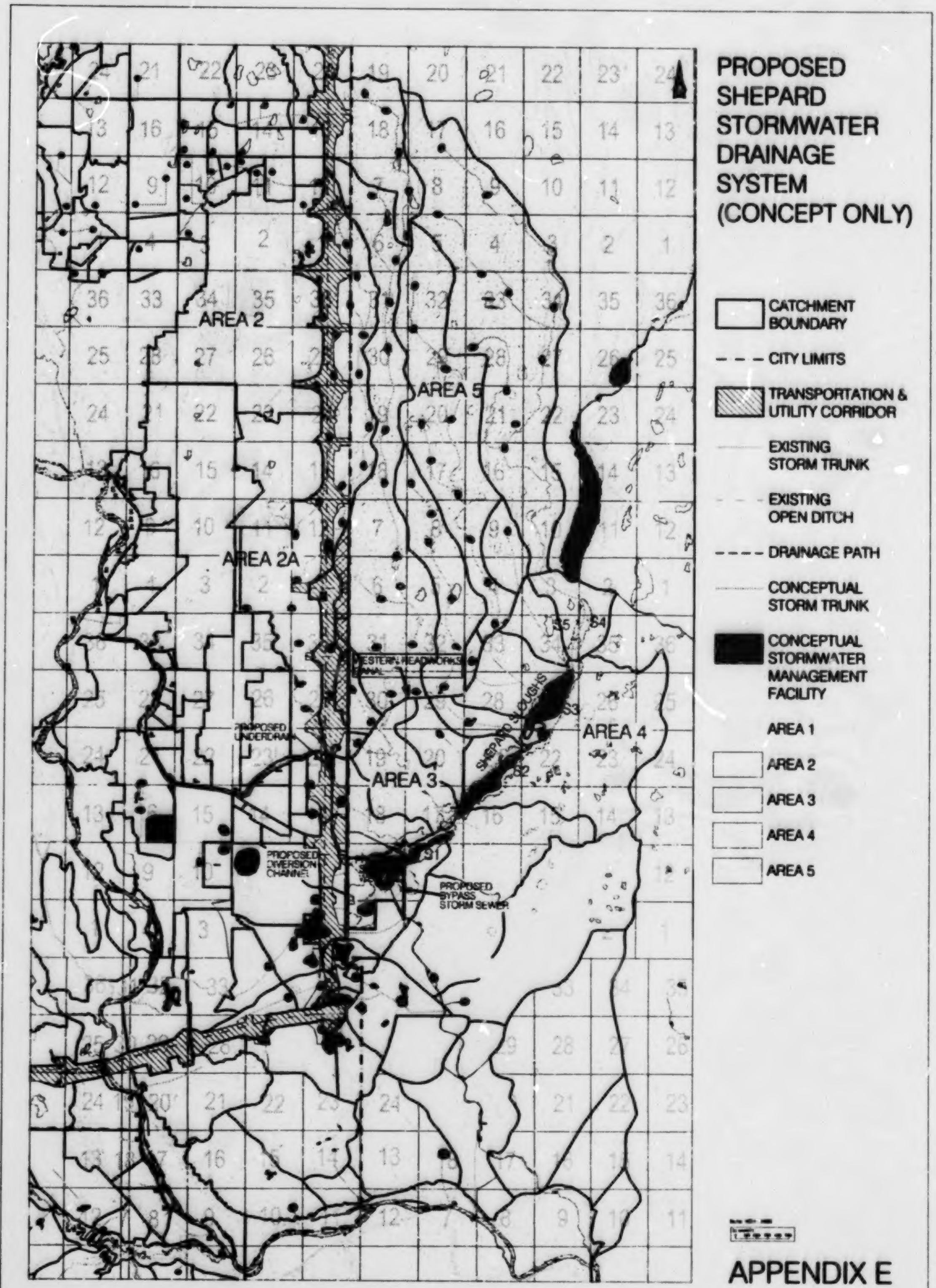
  ii. Determination of access improvement requirements for the roadway at the proposed point of entry including signage, acceleration/deceleration lanes or service road requirements particularly along 114th Avenue/Twp. Rd.232 and 84th Street. Existing future access along 84th Street should also be reviewed. It is anticipated that 84th Street may not operate to the same standard upon development of the TUC;

  iii. Future possible development of the Shepard Constructed Wetlands Project and access conflicts should be reviewed, and improved in accordance with applicable standards proposed;

  iv. Impacts on 84th Street and onto Highway 22X are to be considered as well as influences from increased traffic along 84th Street from Highway 22X; and

  v. Determination of intersection improvement requirement for connector roadways along 114th Avenue/Twp. Rd. 232 and the proposed TUC interchanges are to be considered.

APPENDIX E REGIONAL DRAINAGE SUB-BASIN


PROPOSED SHEPARD STORMWATER DRAINAGE SYSTEM (CONCEPT ONLY)
CATCHMENT BOUNDARY
CITY LIMITS
TRANSPORTATION & UTILITY CORRIDOR
EXISTING STORM TRUNK
EXISTING OPEN DITCH
DRAINAGE PATH
CONCEPTUAL STORM TRUNK
CONCEPTUAL STORMWATER MANAGEMENT FACILITY
AREA 1
AREA 2
AREA 3
AREA 4
AREA 5
AREA 2
AREA 2A
AREA 5
AREA 3
AREA 4
WESTERN HEADWORKS CANAL
SHEPARD SLOUGHS
PROPOSED UNDERDRAIN
PROPOSED DIVERSION CHANNEL
PROPOSED BYPASS STORM SEWER
S1
S2
S3
S4
S5
APPENDIX E

APPENDIX F SHEPARD CONSTRUCTED WETLAND PROJECT

PROPOSED SHEPARD STORMWATER DRAINAGE SYSTEM

The Proposed Shepard stormwater drainage system will ultimately service a watershed of 27,000 ha that extends approximately from 52 Street S.E. to Chestermere Lake and from 100 Avenue N.E. to the Bow River. Major components of the watershed include the Shepard Ditch, the Shepard sloughs and the Western Headworks Canal. The Western Headworks Canal intercepts surface runoffs from approximately 60% of the natural catchment area of the Shepard sloughs.

The Shepard watershed has been subdivided into several subcatchment areas as shown on the attached plan. The currently proposed Shepard Stormwater Diversion Project involves upgrading the Shepard Ditch to handle post development stormwater runoffs from catchment Areas 1, 2 and 3, and predevelopment runoffs from Area 4. The project will convert a portion of slough S1 into a constructed wetland for managing the floodwater diversions from the Western Headworks Canal and stormwater from developments in Area 2. Due to the flat topography, the eastern portion of the Shepard sloughs complex will be a very important component for storm sewer servicing of catchment Areas 3, 4 and 5. The sloughs will be utilized for both storage and conveyance of stormwater.

Since Alberta Environment has imposed a moratorium on new storm sewer outfalls into the Western Headworks Canal, stormwater from future developments in catchment Area 5 will be conveyed to the Shepard sloughs. The storm sewers in catchment Areas 3 and 4 should be oversized to service appropriate subcatchment areas in Area 5 or alternatively, adequate right-of ways-should be provided to allow future extensions of sewer trunks from Shepard sloughs.

Ideally, a regional master drainage plan should be developed as soon as possible for catchment quality. The proposed Shepard Wetland will provide additional storage to attenuate the 1:100 year flow to less than 0.8 l/s/ha.

Area 2A drains naturally to Area 5 outside of the current City limits. Although the proposed underdrain at approximately 76 Street S.E. has capacity to service this area, more detailed studies will be required to determine the feasibility of conveying the stormwater from this area via gravity sewers to the underdrain.

Area 3:

This area will drain to the Shepard Ditch via a proposed storm sewer along the eastern portion of the proposed Shepard Wetland in slough S1. Wet ponds/wetlands will be required in the catchment area to reduce the 1:100 year discharge rate to 0.8 l/s/ha and to improve the stormwater quality. A continuous drainage path must be provided through Area 3 for conveying stormwater from the eastern portion of the Shepard slough complex to the Shepard Ditch.

Area 4:

This area drains to the eastern portion of the Shepard slough complex. Most of the surface runoff is retained in the existing sloughs and overflow to the Shepard Ditch is expected only in an extremely wet year. The currently proposed Shepard Ditch upgrade will be able to accept a maximum of 0.9 m^3/s (or 0.00025 l/s/ha) of stormwater flow from this catchment area. A master drainage plan will be required to identify the storm sewer servicing scheme and allowable discharge rate for future developments in Area 4, and to determine additional upgrading requirements for the Shepard Ditch. Wet ponds/wetlands will be required to improve the water quality and to reduce the 1:100 year discharge rate. Due to the flat topography, the Shepard slough complex will be a very important component of the master drainage plan for this catchment area. Most of the sloughs will be required for stormwater storage and for servicing as a conveyance system to carry stormwater to the Shepard Ditch.

Area 5:

This area currently drains into the Western Headworks Canal. Because of Alberta Environment's concern with the quantity and quality of water in the canal, stormwater from future developments within catchment Area 5 will be conveyed to the Shepard sloughs via future storm sewer extensions in catchment Areas 3 and 4. Wet ponds/wetlands will be required to improve the water quality and to reduce the 1:100 year discharge rate. The currently proposed Shepard Ditch upgrade does not provide any capacity to service catchment Area 5. A master drainage plan will be required to determine the allowable 1:100 year discharge rate from this catchment area and future upgrading requirements for the Shepard Ditch.

Areas 3, 4 and 5 to determine the storm sewer servicing schemes, storage requirements in the Shepard sloughs and future upgrading requirements for the Shepard Ditch.

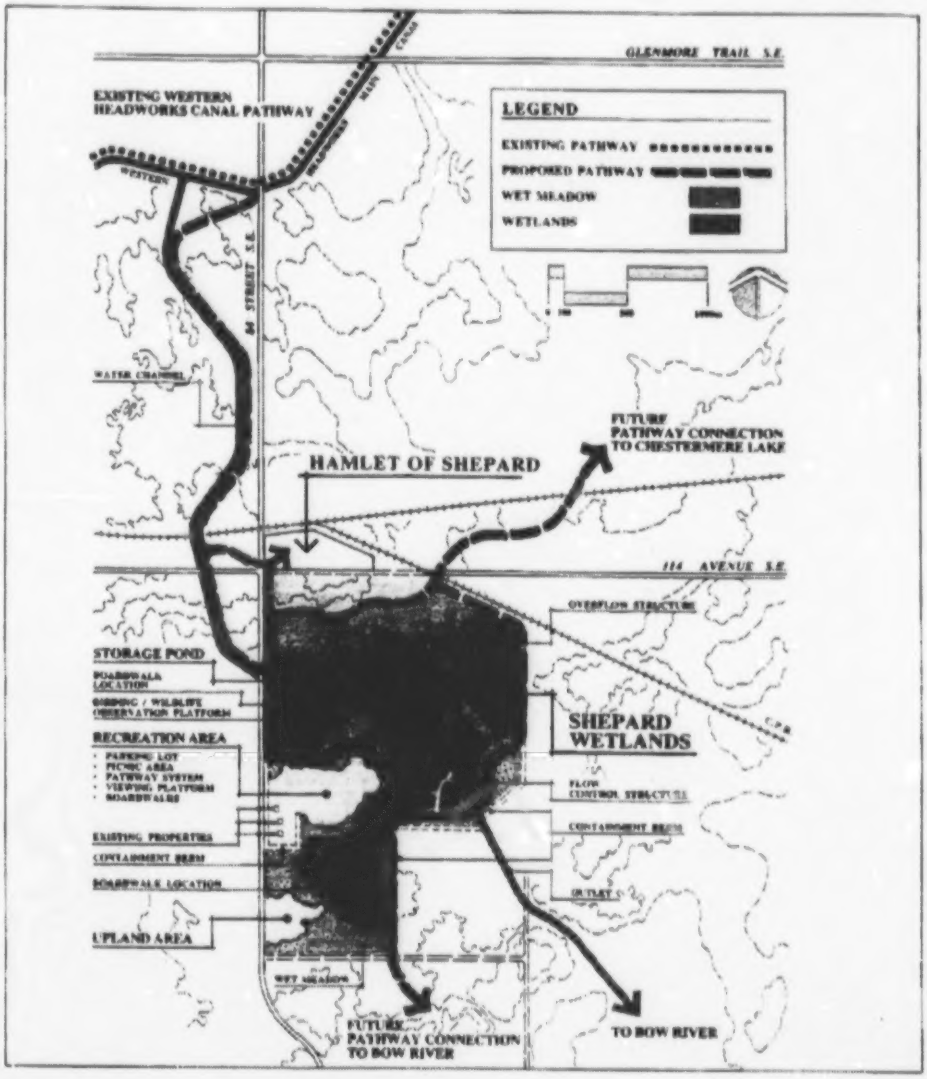
The following is a more detailed description of the servicing concept for each of the subcatchment areas:

Area 1:

This area will drain directly to the Shepard Ditch. Wet ponds/wetlands will be required to improve the stormwater quality and to restrict the post development 1:100 year discharge rate to 2.5 l/s/ha.

Area 2:

This area will drain to the proposed Shepard Wetland that is to be located in the western portion of slough S1. Wet ponds/wetlands will be located throughout this catchment area to reduce the 1:100 year discharge rate to 2.5 l/s/ha and to improve the stormwater



PROPOSED TRAIL CONNECTIONS

PROJECT

Southeast Industrial ASP Amendment/ Shepard ASP

The City of Calgary/M.D. of Rocky View No. 44

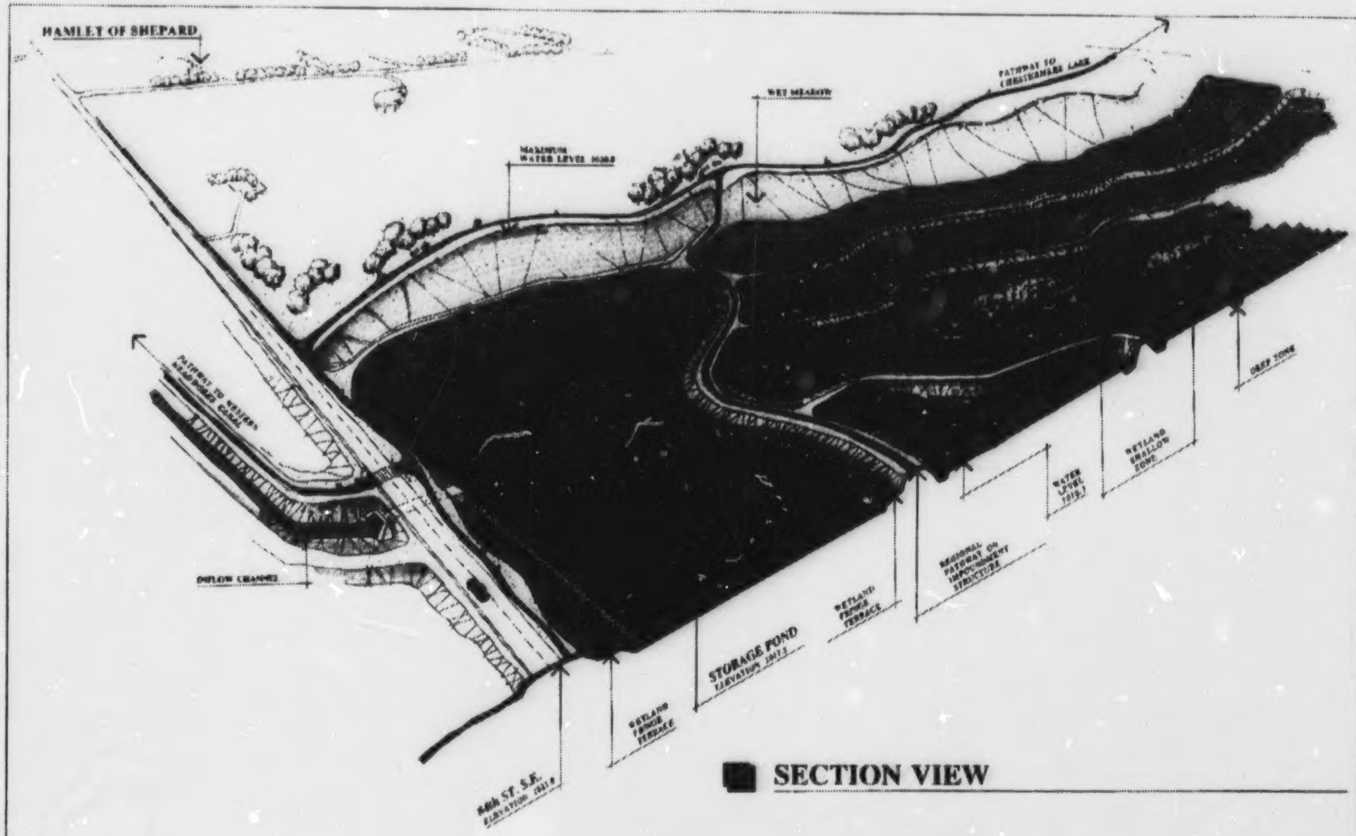
Twp 23 - Rge 28, 29 - W4M

DRAWING TITLE

Proposed Trail Connections

Date: Nov. 1999

Appendix F



■ SECTION VIEW

SHEPARD WETLANDS

Carson . McCulloch Associates Ltd.

MARCH 1999

CG&S

THE CITY OF CALGARY

Alberta

NATURAL RESOURCES SERVICE
BOW REGION

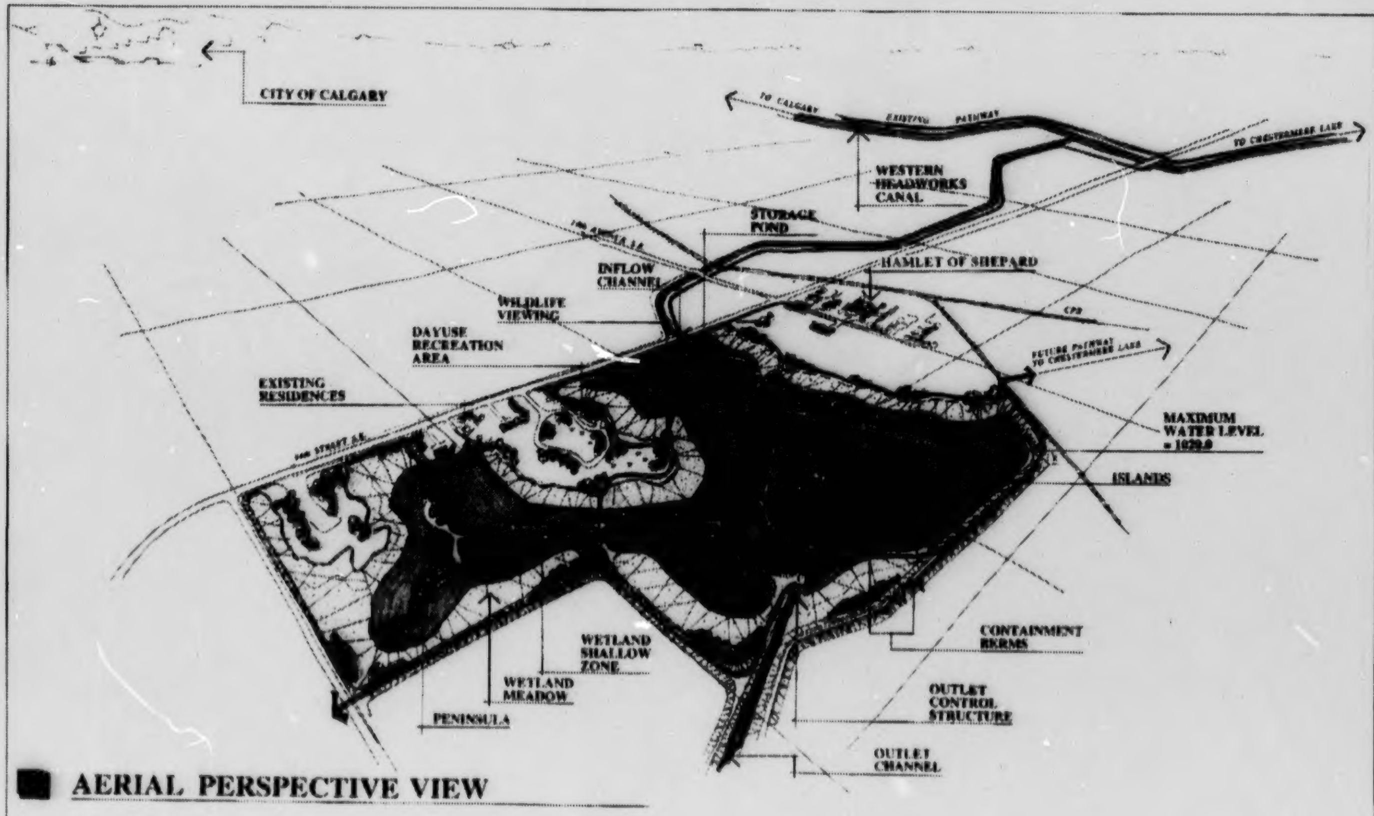
LEGEND

PROJECT
Southeast Industrial ASP Amendment/
Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23,24 - Rge 28, 29 - W4M

DRAWING TITLE
Section View

Date: Nov. 1999

Appendix F



AERIAL PERSPECTIVE VIEW

SHEPARD WETLANDS

CG&S

Carson . McCulloch Associates Ltd.

MARCH 1998

THE CITY OF CALGARY

Alberta

BOW REGION

LEGEND

PROJECT
Southeast Industrial ASP Amendment/
Shepard ASP
The City of Calgary/M.D. of Rocky View No. 44
Twp 23,24 - Rge 28, 29 - W4M

DRAWING TITLE
Aerial Perspective View

Date: Nov. 1999

Appendix F